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DOMESTIC ENGINEERING

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See Page 41

DECEMBER
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Plumbing & Heating Contracting and Merchandising

COMPLETE!

FLOW CONTROL

SYSTEM OF WARM WATER HEATING

★ FORCED CIRCULATION
★ FLOW CONTROL • AUTOMATIC
★ RADIANT HEAT CONTROL . . AND NOW

THRUSH MODULATING BOILER CONTROL

Which automatically adjusts boiler water temperature for outside weather and avoids overheating domestic water. Since it eliminates the necessity for double acting controls and permits lower mean temperature setting, it is more economical than ever in first cost as well as operating cost. Truly the most completely coordinated automatic warm water heating system yet developed. It has everything!

THRUSH

EVERY CONTROL IS A THRUSH CONTROL

1 Thrush Flow Control Valve.

2 Thrush Water Circulator.

6 No. 201 Thrush Radiant Heat Control.

8 No. 203 Thrush Modulating Boiler Control.

7 No. 198 Thrush Relay Transformer.

3 No. 4 Thrush Differential Pressure Relief Valve.

4 No. 12 Thrush Pressure Reducing Valve.

9 Thrush Gauge and Thermometer.

10 No. 75 High Pressure Thrush Relief Valve.

5 Air-tight Thrush Pressure Tank.

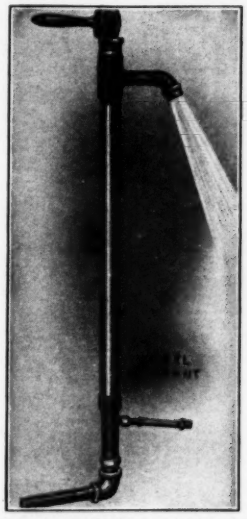
● MAIL THIS

H. A. THRUSH & CO.
Box 458, PERU, INDIANA
Please tell us more about Thrush Flow Control System.

Name _____

Address _____ City _____ State _____

For real protection against COLD WEATHER

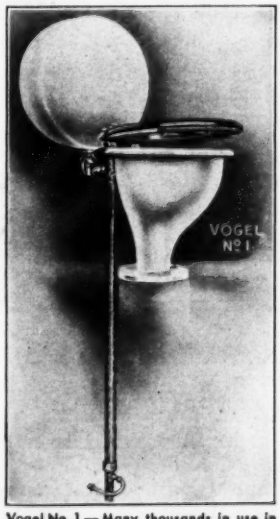


Vogel Frost-Proof Hydrant for outside installation and for use on farms, dairies and in unheated garages. Can never freeze.

you can't beat . . .

VOGEL PATENTED FROST-PROOF CLOSETS AND HYDRANTS

EVEN in the coldest weather and with hard and continuous use VOGEL Frost-Proof Closets and Hydrants operate efficiently and economically. Repairs are seldom necessary, and we have never known a VOGEL Outfit to freeze when properly installed. Also VOGEL installations bring you new customers.



Vogel No. 1 — Many thousands in use in all parts of the country. Cannot freeze, no matter how cold the weather.

JOSEPH A. VOGEL COMPANY
Wilmington, Delaware
St. Louis, Missouri

Vogel No. 4 — Frost-Proof. China bowl, top supply. Same valve as the Vogel No. 1. As good-looking as a bathroom closet.

★ VOGEL PATENTED *Frost-Proof* **Products** ★

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

December, 1937

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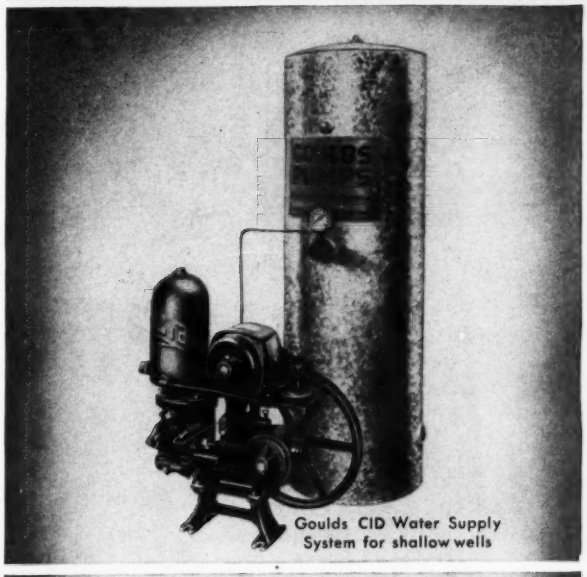

Goulds CID Water Supply System for shallow wells

Goulds CID Water Supply System for deep wells

Goulds CID Water Supply Systems are a real convenience where city water supply is unavailable.

Goulds CID Shallow or Deep Well Pumps will satisfy your customers because they give year in and year out service with a minimum of upkeep. They are today's greatest pump value.

Every Goulds CID Pump has a reputation for dependability and economy—each is built with a minimum of moving parts to keep pumping costs low. Available in sizes and capacities to meet the requirements of every customer.

Capitalize on Goulds Pump popularity—increase sales — stock the complete line today. Goulds CID Pumps are sold under a policy that protects and favors the legitimate dealer and distributor. They are priced to sell fast and give you a substantial profit. If your regular jobber does not handle the Goulds line, write for the name of the nearest Goulds distributor.

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RUNNING WATER
YOUR FAMILY DESERVES IT
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With complete stocks carried by leading distributors throughout America, you can depend upon prompt delivery of Wheeling COP-R-LOY Pipe for every type of project. Where conditions are unusually severe, where dependable, economical performance is essential, and where low cost is an important consideration, you can safely specify COP-R-LOY Pipe. It has written its own record for durability. Order COP-R-LOY tubular goods by name . . . It's Wheeling Steel. Wheeling Steel Corporation, Wheeling, West Virginia.

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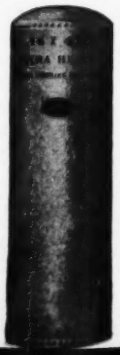
Whitaker Range Boilers and Special Tanks, made of COP-R-LOY, are available through your regular source of supply.



COP-R-LOY *Pipe*

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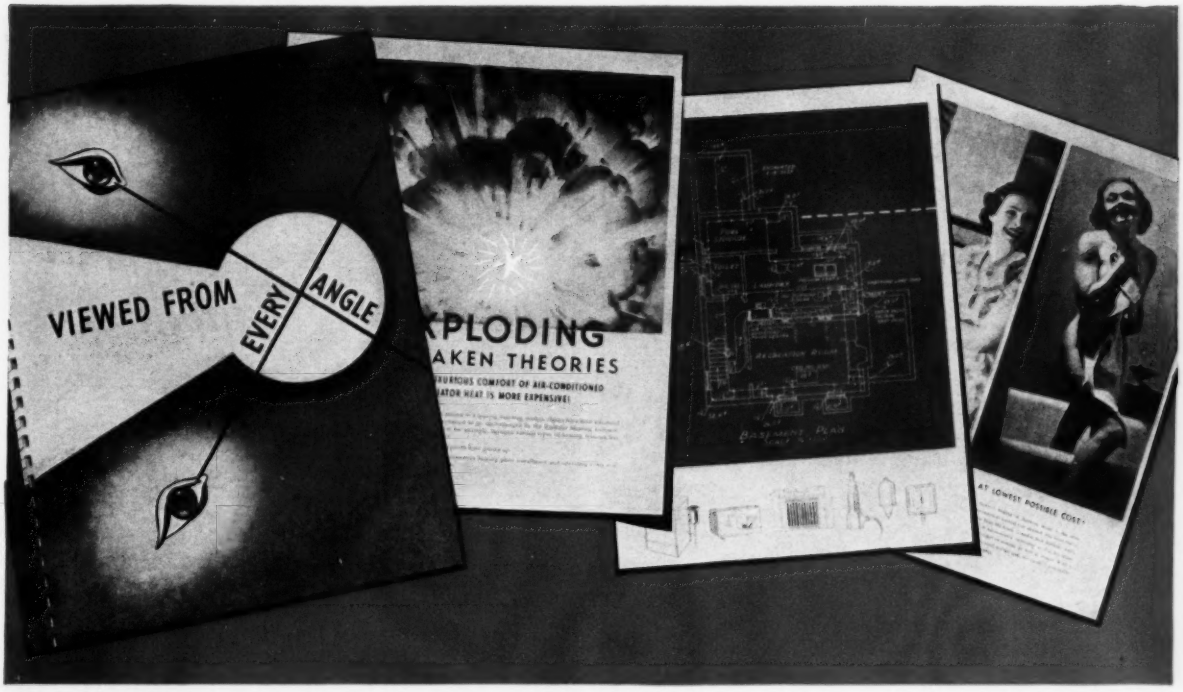
IT'S WHEELING STEEL



THE MOST POWERFUL SELLING STORY EVER PRESENTED FOR VACUUM HEAT

There is no substitute for the features which have made Hoffman Vacuum Valves the choice of Heating Contractors for nearly a quarter century. Double Air-Locks, leak-proof Double Shell and Six Speed Venting provide the high sustained vacuums and "balanced" steam distribution necessary for most economical vacuum heating.

Have you read "Viewed from Every Angle"? It's the booklet that ends all controversy over the merits of radiator and non-radiator heat. Crammed with facts which show conclusively that Hoffman Vacuum Heat with Air Conditioning will deliver *more comfort for much less money.*

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HELPS SELL MODERNIZING JOBS

The facts presented in "Viewed from Every Angle" work equally well in selling an owner on modernization with Hoffman Vacuum Valves. This book is a complete sales promotion which will work its head off for every Heating Contractor who uses it. Write for your copy at once. Hoffman Specialty Co., Inc., Dept. RX-12, Waterbury, Connecticut.

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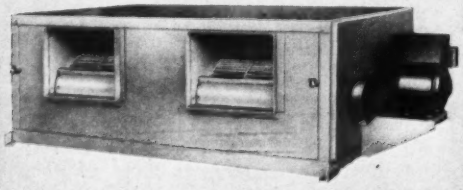
VACUUM VALVES

The Quality Line of HSCo *Heating Specialties*

Sold everywhere by leading wholesalers of Heating and Plumbing equipment

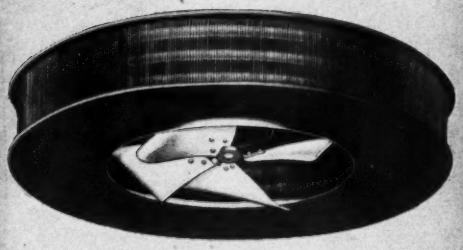
FOUR REASONS FOR

. . . . Serving the Heating, Cooling and Air Conditioning Industry from 70 U. S. offices.



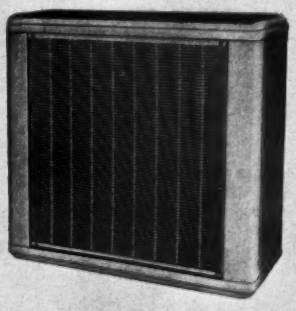
For Every Purpose Air Conditioners

You will find Trane Air Conditioning installations in every state in the Union, in many foreign countries, solving such widely different problems as the conditioning of a home, a modern train, a battleship, or the heating and ventilating of a school building. Because of its flexibility, Trane Air Conditioning Equipment can be adapted to meet all conditions and all budgets. Ask for Trane Air Conditioning Bulletins, stating intended use of equipment.



Unit Heaters

Trane offers the most comprehensive line of Unit Heaters available to the industry. Includes a complete range of sizes of standard propeller and blower type units, and the sensational new Trane Projection Heater. The Projector initiates a new efficiency and a new idea of comfort, principally due to its exclusive design. This makes possible high ceiling mounting, resulting in complete circulation and re-circulation to the breathing area of hot ceiling air, usually wasted. Similar in operating principle is the Trane Multiple Projection Heater, incorporating two or more fans in a single, compact mounting, having all the features of the blower type without its weight and cost. Ask for Trane Bulletins No. 284 and 294.

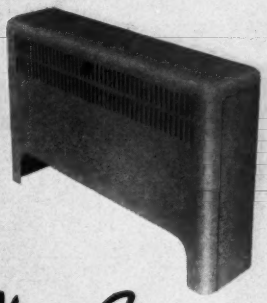


The Trane Propeller type Unit Heater shown here comes in over sixty different styles and sizes, with the most complete range of capacities commercially available. Ask for Bulletin No. 85.

IN HEATING AND AIR

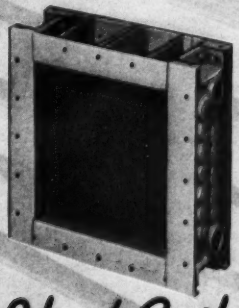
Address The Trane Company, 2006 Cameron Avenue, La Crosse, Wis.

TRANE LEADERSHIP



Non-Ferrous Convectors

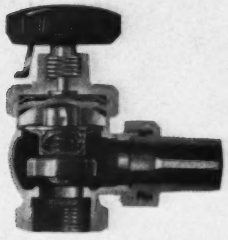
Trane Non-Ferrous Convectors have completely revolutionized heating standards and efficiency. Trane Coils provide transfer surfaces that make possible concealed or space saving construction, quicker response and greater heat output. One large city has used over 60,000 Trane Convectors in the last five years. Ask for Trane Convector Bulletins.



Blast Coils

Trane Coil construction, which has gained wide acceptance in central heating and ventilating systems, in Trane Convectors, in Unit Heaters and Air Conditioners, is also available for application in process and product conditioning. The non-ferrous tube and fin construction of Trane Coils, without use of solder, enables them to withstand both high and low pressures indefinitely. Ask for Trane Bulletin No. 152.

Heating Specialties



Trane Hermetic Valves—an outstanding example of Trane Heating Specialties—are packless in every sense of the word. Careful design has eliminated all Gaskets, Stuffing Boxes and Packing. Less than one turn is required for full opening. Easy modulation.

Trane Heating Specialties are indispensible in steam heating applications. They consist of a complete line of Traps, Valves, Vents, and Boiler Specialties, incorporating the famous Trane Balanced Pressure bellows. Ask for Trane Bulletins.

THE TRANE COMPANY, LA CROSSE, WIS.

TRANE CO[illegible] OF CANADA, LTD., TORONTO, ONT.

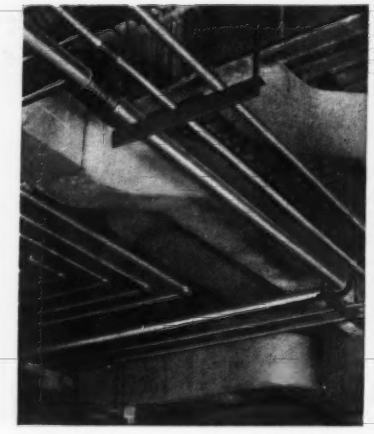
TRANE AIR[n]

HEATING AND AIR CONDITIONING TO THE n^{th} DEGREE

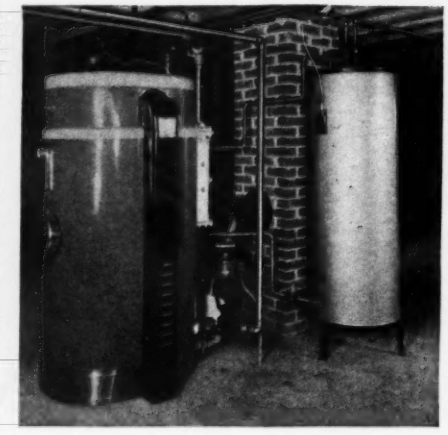
CONDITIONING EQUIPMENT

Address The Trane Company, 2006 Cameron Avenue, La Crosse, Wis.

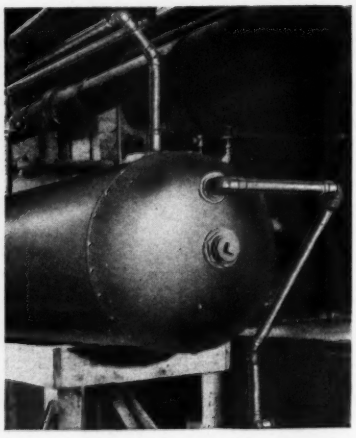
TODAY IT'S *Copper* DOWNSTAIRS



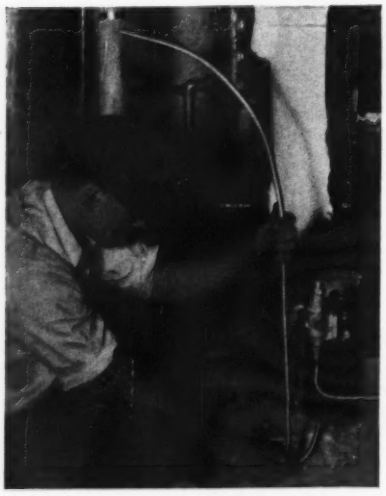
1 Hot and cold water lines of Revere Copper Water Tube in place of rustable material add little to overall building costs . . . save dollars in upkeep . . . give permanent satisfaction . . . increase property value.



2 Because of its efficiency and neatness, Revere Copper Water Tube is becoming increasingly popular for heating lines . . . especially for forced circulation systems. Copper, or copper alloys such as Herculoy, are preferred for automatic storage heaters.



3 With non-rustable copper water lines, the hot water storage tank should also be copper—permanently strong and tight. (Notice, too, that all joints in these illustrations are made with Streamline soldered Fittings.)

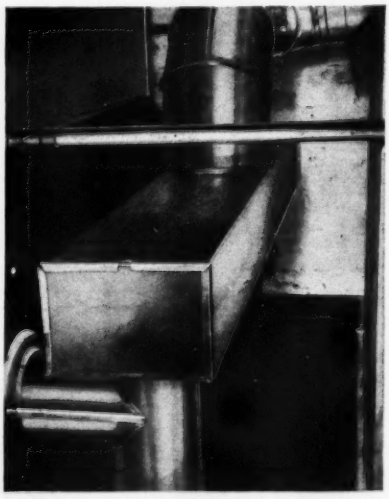


4 Using Revere Copper Tube for oil-burner hook-ups is a grand idea. And Revere Dryseal dead soft copper tube is ideal for oil burner repair work.

5 Air conditioning is a "comer" that means more profit for many branches of the building trades. Revere Sheet Copper for ducts, and Revere Copper Tube for water and refrigerant lines, give vital protection.

•

Cash in on today's demand for copper by recommending these modern, lifetime Revere materials, readily obtainable from a near-by Revere distributor.



Revere Copper *and* Brass

INCORPORATED

FOUNDED BY PAUL REVERE 1801

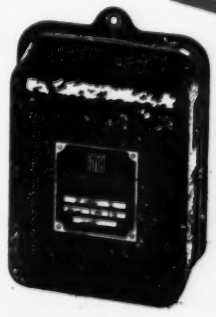
EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS. NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

PACKLESS

Means LEAK-PROOF!

. . . AND MORE SALES FOR YOU THAT ARE PACKED WITH PROFIT

THE Minneapolis-Honeywell Packless Seal Circulator banishes forever leaking oil and water. Its precision construction and scientific lubrication make it permanently quiet. In every sense of the word it is a M-H quality job, yet it comes to you at a specially attractive price. You will find the combination of Circulator and Series 10 Relay gives you an entirely new, more economical and fully automatic set up of control for summer-winter systems. The same combination can be economically installed on systems where the Circulator is used only to speed circulation. Install a M-H Packless Seal Circulator on your next job. It is packed with profit for you and will make life-long friends of your customers. Your nearest Minneapolis-Honeywell branch office can supply all the details. Minneapolis-Honeywell Regulator Co., 2801 Fourth Ave. So., Minneapolis, Minn.



CHECK THESE SUPERIOR FEATURES

1 IT'S QUIET. Quiet when you get it, quiet in years to come.

2 IT'S LEAK PROOF. Sealed with the famous M-H Packless Seal, an exclusive feature of vital importance. No oil or water to soil the modern basement.

3 IT'S PRECISION BUILT. Bearings perfectly aligned with precision tolerances.

4 IT'S SCIENTIFICALLY LUBRICATED. Oil reservoir lubrication design insures trouble-free performance. Long lasting oil supply readily renewed by home owner.

MINNEAPOLIS-HONEYWELL

AUTOMATIC CONTROLS MH

Packless Seal **CIRCULATOR**

DEPENDABLE CONTROLS COST LESS THAN SERVICE

CHICAGO FAUCET NEWS

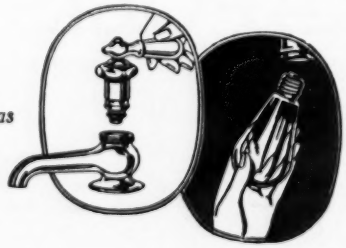
Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 6, No. 2

All parts of Chicago Faucets subject to wear are incorporated in a standardized, removable, interchangeable operating unit and are as easily renewable as an electric light bulb.

Hi-Lite

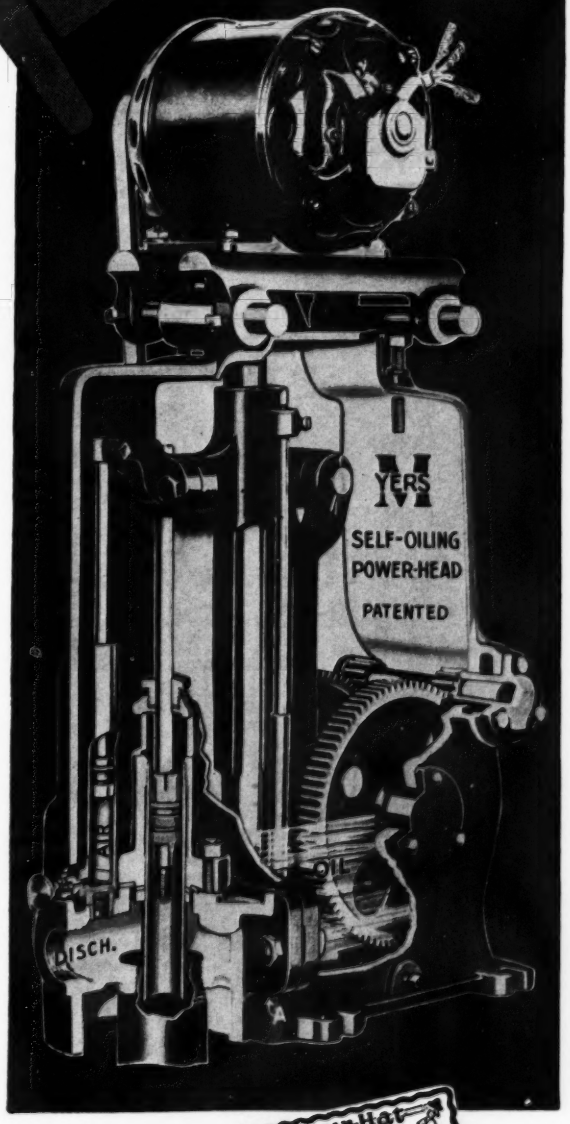
is the newest development in modern trim for Chicago Faucet bath and lavatory fixtures. In the few weeks since its introduction it has scored a genuine "hit" with the trade. That was but natural; for Hi-Lite subtly combines rare beauty of line with pure functional design. It delights the eye and satisfies every structural requirement, yet is very moderately priced.

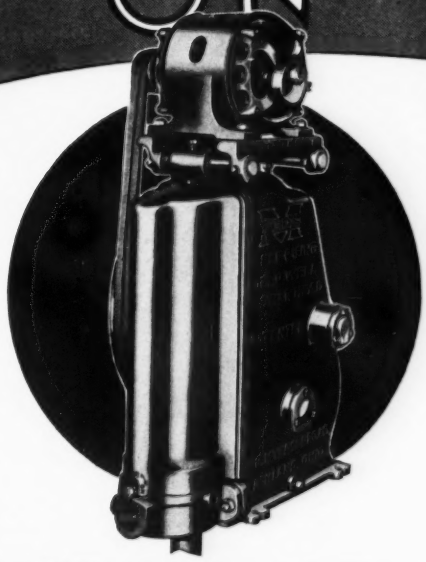
With the same renewable operating unit that has



made Chicago Faucets famous

Built to "CARRY ON"





MYERS SELF-OILING DEEP WELL POWER PUMPS

With the coming of January inventories are again in order. The old year is history. The story has been written in profits for some and in losses for others. Whatever the records show, one way or the other, the fact remains that the year just closed has witnessed marked improvements in Myers Self-Oiling Power Pumps and Water Systems that will continue to fortify their position of leadership and further enhance their sales and profit values for those who look forward to widening their business opportunities during 1938.

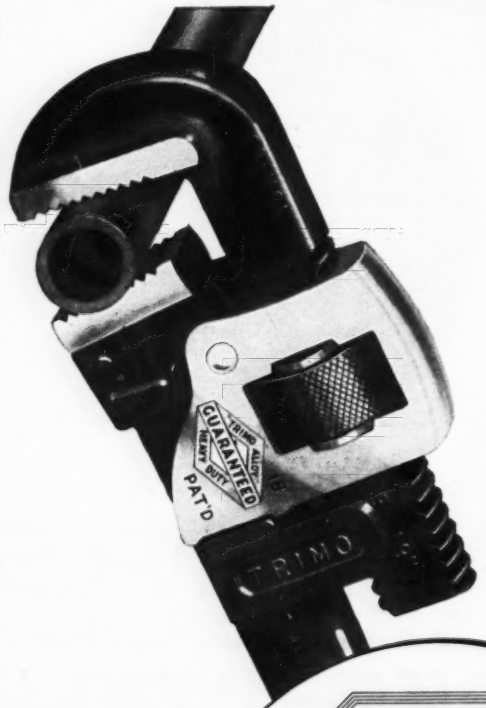
Myers Self-Oiling Power Pumps and Water Systems are designed for wide service. Shallow or deep well, engine or motor power. Few indeed are the demands which cannot be successfully and profitably met from the Myers line.

Start the New Year right by writing us for catalog and complete information.

THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO.

PUMPS – WATER SYSTEMS – HAY TOOLS – DOOR HANGERS

YOUR WRITTEN GUARANTEE OF THE STRONGEST, SAFEST PIPE WRENCH



You will always find Trimo's written guarantee attached to every Trimo Pipe Wrench . . . positive assurance of 100% Heavy Duty Alloy Steel Construction . . . drop forged and heat treated for extra strength . . . at no increase in price.

DROP FORGING PROCESS

Recognized as the outstanding method of making the strongest quality steel tools . . . responsible for Trimo's Built-In Quality . . . the reason why Trimo can guarantee the whole wrench.

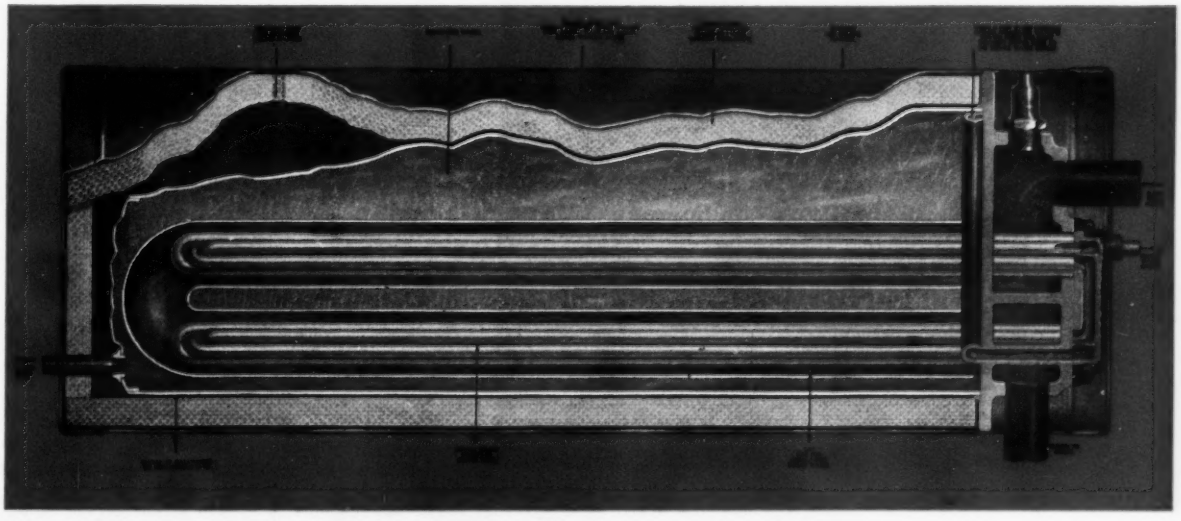
"TRIMO GUARANTEES THE *WHOLE* WRENCH"

Trimo's Guarantee is stated on this Tag . . . wired to the handle of every Genuine Trimo-Alloy Tool. It is a guarantee of the strongest, best pipe wrench . . . yet Trimo costs no more.

TRIMONT MFG. CO., Inc.
Roxbury (Boston), Mass.

...AND NOW THE THERMO-VOIR

A WATER HEATER SO REVOLUTIONARY IN DESIGN THAT AN ENTIRELY NEW STANDARD OF ECONOMY IS ESTABLISHED . . . FOR THE FIRST TIME PROVIDING A MEANS OF UTILIZING THE STAND-BY HEAT LOSS OF THE BOILER . . . FURNISHING A VIRTUALLY UNLIMITED SUPPLY OF HOT WATER AT THE LOWEST COST EVER POSSIBLE!



Forget all your present ideas of water-heater efficiency! Because here is a unit which employs an utterly different principle to achieve an unheard-of economy. The B & G Thermo-voir literally "Soaks up Heat" from the boiler . . . so effectively that it can be used even with new-type boilers having small water content and large heat absorption.

The B & G Thermo-voir is adaptable to both hot water and steam boilers and is offered in non-ferrous metals in the DeLuxe model, galvanized metal in the Standard model. It's light in weight, compact, smartly modern in appearance and installed with a minimum of labor. Don't wait—send the coupon at once for complete details on installation and operation.

BELL & GOSSETT CO. **B&G** CHICAGO 3000 Wallace St.

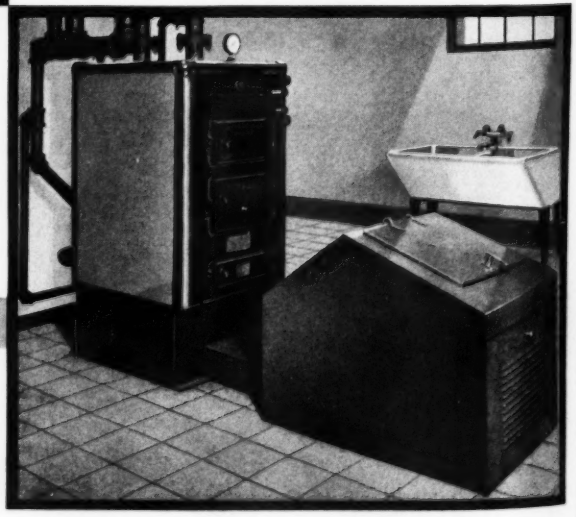
BELL & GOSSETT CO.
3000 Wallace St., Chicago
Send me complete information on the B&G Thermo-voir.

Name .....
Address .....
City ..... *State* .....

The modern note in the bathroom is best expressed in the beautiful fixtures styled by Crane for today's preferences. The tub is Crane *Neuvogue;* the lavatory, Crane *Corwith;* and the closet Crane *Manor.*

A modern labor-saving kitchen is the desire of every housewife—an enormous opportunity for sales. The Crane Kitchen Planning Service helps you get the complete job.

Don't overlook the profit Crane offers you on high efficiency heating equipment for every type of heat with any kind of fuel. The Crane Stoker-Fired Boiler meets the new trend to automatic heat with coal.



Mention Crane
AND THEY'RE HALF SOLD

● There is no question in the mind of Mr. and Mrs. America that the name Crane on a bathtub and lavatory—kitchen sink or laundry tray—boiler or radiator stands for the maximum in quality. The suggestion to your customers that they rely on Crane plumbing and heating equipment immediately establishes the quality you propose to furnish—ends argument on that score.

Customers appreciate the wide variety of styles and colors in Crane fixtures—the selection of either modern or traditional design—to suit every taste. Many contractors make extensive use of Crane display rooms to show their customers the latest in today's taste. You are invited to do so, too. Customers also appreciate the Liberal Payment Plan that you can offer to them when you propose Crane-Equipment.

Team up your local reputation for service with the national reputation of Crane for quality. Hand in hand, this powerful combination will help your sales . . . help your profits, too!

●

It will profit you to visit the Crane exhibit at the Fifth International Heating and Ventilating Exposition—Grand Central Palace—New York City—January 24 to 28, 1938. Booth Nos. 54 and 55.

CRANE

CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS

Branches and Sales Offices in One Hundred and Sixty Cities

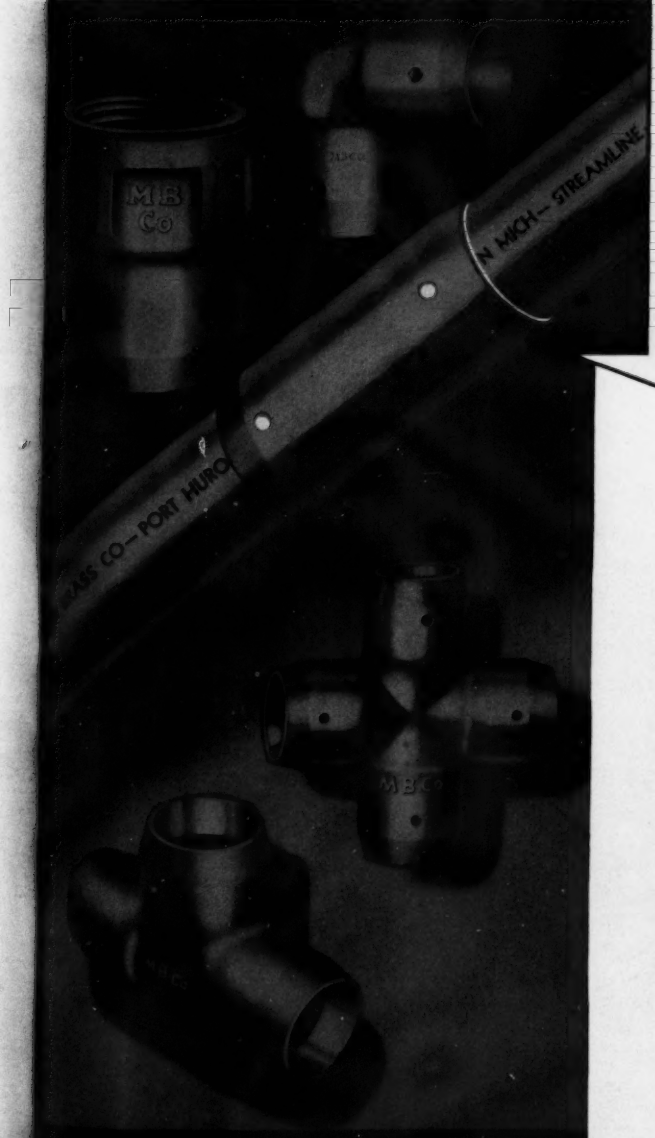
VALVES, FITTINGS, FABRICATED PIPE, PUMPS, PLUMBING AND HEATING MATERIAL

25 years
1912 - 1937
Appreciation . . .
Realizing that the progress we have made during the past 25 years cannot alone be accredited to manufacturing achievements, we here acknowledge our appreciation of the loyalty and cooperation of our distributing outlets, their men and their efforts in assisting our organization in accomplishing 25 years of progress in the manufacture of Tubular Brass Plumbing Goods.
Products of
THE M. S. LITTLE MFG. CO.
HARTFORD : : : : : CONNECTICUT

STREAMLINE

TRADE MARK REG. U.S. PAT. OFFICE

Copper PIPE and FITTINGS



for MODERN HEATING and AIR CONDITIONING

CONSIDER STREAMLINE Copper Pipe and Solder Fittings for your next piping job. Remember there is nothing so efficient for water, steam or vapor systems as Copper Pipe—and Copper Pipe connected with the smoothly recessed uniform water-way of the STREAMLINE Fitting.

In addition to its non-rusting, non-clogging qualities and its constantly uniform conducting area, Copper Pipe actually delivers the heating element to the radiators quicker and with less heat loss than its corresponding size in other pipe. Radiators gain their maximum efficiency in keeping the building comfortably heated.

Of the several complaints the building owner may have, one of his "pet peeves" is the fact that certain rooms or apartments in the building cannot be evenly and comfortably heated. This state of affairs is mostly traceable to loss of head through internal corrosion and flow restriction. An installation of STREAMLINE Copper Pipe and Solder Fittings eliminates the lag in heating systems.

Remember too, the STREAMLINE Fitting is a cast bronze fitting—rigid and strong. The pipe openings are machined to accurate capillary fit for the pipe—and more than that they stay perfectly round and retain their proper tolerance even when subjected to the intense heat required when the higher melting point solders are used. In short, they make a more positive, workmanlike job, more satisfactory for you to use, and eminently more satisfactory for the finished installation.

STREAMLINE Copper Pipe is not commercial copper pipe. It is a greatly improved product of uniform diameter and consistently close tolerance.

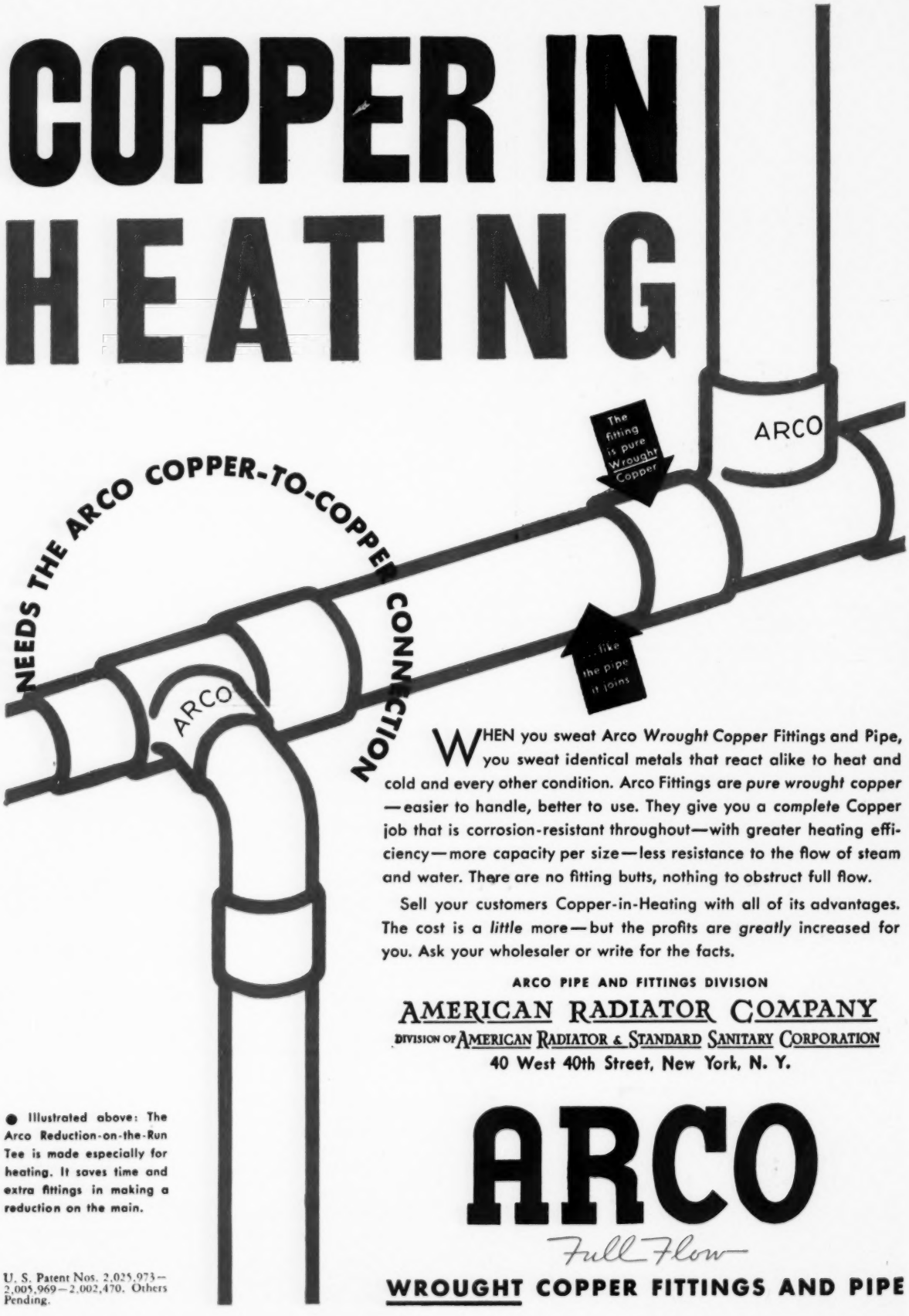
STREAMLINE Solder Fittings are manufactured in sizes from ¼" to 12" inclusive, and in a complete range of reductions in tees and elbows. You connect directly to the smaller or larger pipe lines without the use of adapters with their additional expense both for material and labor. A BETTER JOB—A LESS EXPENSIVE JOB—AND A MORE WORKMANLIKE JOB.

Use STREAMLINE Copper Pipe, connect it with STREAMLINE Fittings—ALWAYS.

Manufactured in Canada Under License by
CANADA WIRE & CABLE CO. LTD., TORONTO, CANADA

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

COPPER IN HEATING



WHEN you sweat Arco *Wrought* Copper Fittings and Pipe, you sweat identical metals that react alike to heat and cold and every other condition. Arco Fittings are *pure wrought copper* —easier to handle, better to use. They give you a *complete* Copper job that is corrosion-resistant throughout—with greater heating efficiency—more capacity per size—less resistance to the flow of steam and water. There are no fitting butts, nothing to obstruct full flow.

Sell your customers Copper-in-Heating with all of its advantages. The cost is a *little* more—but the profits are *greatly* increased for you. Ask your wholesaler or write for the facts.

ARCO PIPE AND FITTINGS DIVISION

AMERICAN RADIATOR COMPANY

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

40 West 40th Street, New York, N. Y.

● Illustrated above: The Arco Reduction-on-the-Run Tee is made especially for heating. It saves time and extra fittings in making a reduction on the main.

U. S. Patent Nos. 2,025,973—2,005,969—2,002,470. Others Pending.

ARCO

Full Flow

WROUGHT COPPER FITTINGS AND PIPE

"I SAID NON-CLOG
AND THERE'S TO BE NO MORE
EXCEPTIONS! THIS MUST NOT
HAPPEN AGAIN!"
"...clogged drains...flooded floors ...disabled and rusted equipment... water-logged merchandise can be forestalled. We are expected to select and specify the right type drain for each location...and there are locations where only Non-Clog Triple Drainage Drains provide adequate protection.
"I insist...insist, understand...that a specification writer recognize special needs of certain locations and specify NON-CLOG Triple Drainage Drains ...Josam's...where there's even a remote likelihood that anything would be subjected to damage occasioned by floods and seepage due to clogged drains".
Every week...every day...unpleasant, irritating experiences are emphasizing the need of unobstructed drainage... of making Josam Non-Clog Triple Drainage Drains a matter of standard specification for certain locations. For these triple drainage...sediment arresting drains...are a definite assurance of uninterrupted drainage ...even where water is persistently laden with debris.
If you haven't received the special folder featuring this important drain, use the coupon below for requesting it.
Josam PRODUCTS
STANDARD OF AMERICA
JOSAM MANUFACTURING COMPANY
Main Sales and Engineering Office
Empire Building, Cleveland, Ohio
Factory and Foundry
Michigan City, Indiana
Representatives in All Principal Cities
THERE ARE NO SUBSTITUTES FOR JOSAM PRODUCTS
NORMAL DRAINAGE
TRIPLE DRAINAGE
DOUBLE DRAINAGE

YOUR CUSTOMERS DESERVE THE SAME PROTECTION
Architects Demand for Their Clients . . .

Josam

Non-Clog *Triple Drainage* Drains definitely assure continuous...unobstructed drainage. Debris collects in the new sediment bucket, but cannot clog the drain. Surface flow always maintained through auxiliary drainage holes. No other type drain ought to be installed in areaways, warehouses, basements, industrial plants, storage, garage, wash or toilet rooms.

Architects are specifying Josam Non-Clog Triple Drainage Drains for locations where unobstructed drainage must be maintained... and expect you to be able to cooperate with them in installing drainage systems that require the use of Josam Non-Clog Triple Drainage Drains, to prevent their clients experiencing inconvenience and loss, throuqh floods caused by obstructed drainage. If you're not prepared to do this, the architect may call in a plumbing contractor who is. Your customers, too, may be tolerating a condition, easily corrected by installing Josam Non-Clog Triple Drainage Drains. Better recognize this fact and make yourself thoroughly familiar with the features and advantages of this new type of drain when installed at locations where only Non-Clog Triple Drainage Drains can provide adequate protection. Mail the coupon below for special folder. Get it in the mail today.

Josam TRADE MARK REG PRODUCTS
STANDARD OF AMERICA

Josam Products are Sold by All Plumbing Supply Wholesalers

JOSAM MANUFACTURING COMPANY

Main Sales and Engineering Office
Empire Building, Cleveland, Ohio

Factory and Foundry
Michigan City, Indiana

Representatives in All Principal Cities

THERE ARE NO SUBSTITUTES FOR JOSAM PRODUCTS

MAIL THIS COUPON ★ GET THIS FOLDER

JOSAM MANUFACTURING COMPANY
DEPARTMENT "D"
EMPIRE BUILDING, CLEVELAND, OHIO

Please send copy of special Non-Clog Triple Drainage Drain Folder.

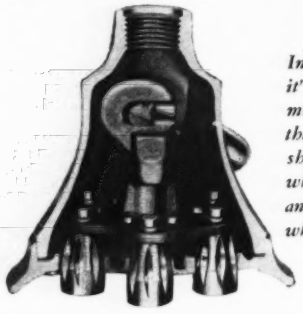
Name _____

Title _____

Address _____

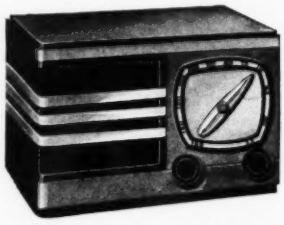
City _____ State _____

WHAT'S INSIDE *tells the true story*



In the Anystream Shower Head, it's the precision-tooled movement of six slotted plungers that determines the type of shower you get. A flood shower when they are fully extended and a fine-spray needle shower when retracted.

Not beauty of cabinet, but internal construction, determines your radio's performance... In plumbing fixtures, "what's inside" is equally important. Be sure you know.



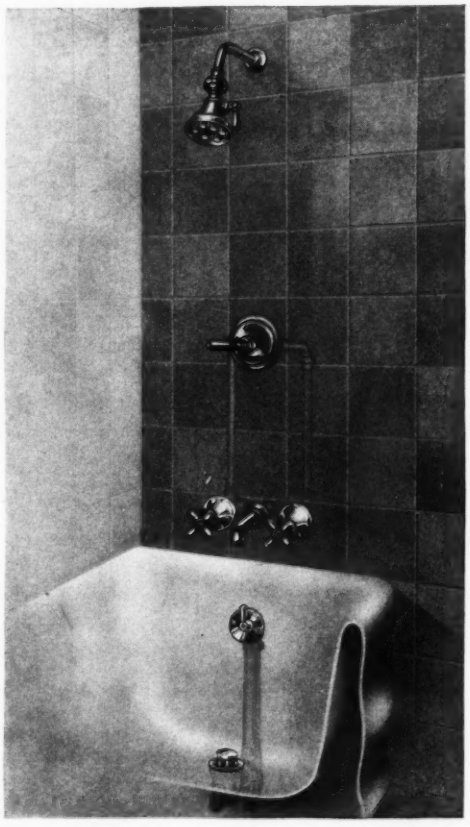
Every shower head, every shower combination—every fixture made by Speakman for bathroom, lavatory or kitchen – has a story of "what's inside." External beauty is not enough.

Internal construction in Speakman fixtures gives you strong selling facts. "What's inside" enables you to tell your customer that plumbing fixtures do differ. And, after you have made the sale, "what's inside" protects you against unsatisfactory service and unreasonable call-backs.

You know that the customer usually blames the plumber, instead of the fixture. Sell Speakman showers and fixtures and know your installations will stay sold. Speakman prices are always in line – strictly competitive.

Features like renewable valve seats, swivel discs with encased washers, monel metal washer screws, large waterway areas and accurate machining are Speakman features your customers will probably never see . . . yet they are but a few of the construction details that assure the continuous satisfactory service your customers expect you to provide.

This is the kind of business you want. Get your share. Put up our new "Approved Dealer" sign; display Speakman fixtures in your window; write us for free literature and sales promotion material. SPEAKMAN COMPANY, WILMINGTON, DELAWARE. Quality fixtures since 1869.



SPEAKMAN

SHOWERS • SHOWER HEADS • BATH FIXTURES • SI-FLO (SILENT) FLUSH VALVES
LAVATORY FIXTURES • SINK FIXTURES • INSTITUTIONAL AND INDUSTRIAL FIXTURES

SHOWERS AND FIXTURES

VENT-RITE AIR VALVES

THE VENT-RITE BALANCER used in conjunction with Vacuum type valves on automatically fired one-pipe steam jobs creates

THE VENT-VAC SYSTEM

Today Vent-Rite—ALONE—is proving in the field, that the combination of the Vent-Rite Balancer with any type of Vacuum Valves does a Remarkably Efficient job on any automatically fired One-Pipe Steam System, especially on installations in Large Residences, Apartment Houses, Small Hotels, Hospitals and Factories.

You can solve your most troublesome one-pipe steam problems with the Vent-Rite Balancer. Complete details on request.

THE UTMOST IN EFFICIENCY

Record-breaking is not confined to trans-Atlantic liners such as the Normandie, which holds the world's record, for in the field of Air Valves—Vent-Rites—in their own quiet way are also breaking records—solving those "impossible" one-pipe steam problems.

The remarkable performance of Vent-Rites, which makes certain the quick, uniform transfer of heat to all radiators regardless of size, location or pressure carried, can only be attributed to their numerous exclusive features which provide—(1) straight line venting, (2) modulating adjustment, (3) free venting orifice, (4) exceptionally wide range of venting rates to insure positive steam distribution, (5) tamper-proof adjustment, (6) take-apart construction.

The valve illustrated shows the new styling of the Vent-Rite 1938 line—a smart, modern pattern on octagonal lines which keeps Vent-Rites outstanding in eye appeal as well as performance.

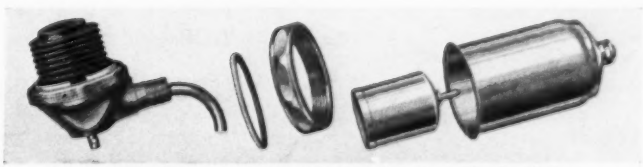
Take-apart construction has been improved by introducing an octagonal union coupling which facilitates opening the valve for cleaning, and a copper armored, asbestos gasket which insures a tight joint when reassembling.

With the addition of two new valves, the 1938 line is complete for every venting requirement. Install Vent-Rites wherever venting is necessary—for the customer satisfaction they give—for the profit they bring.

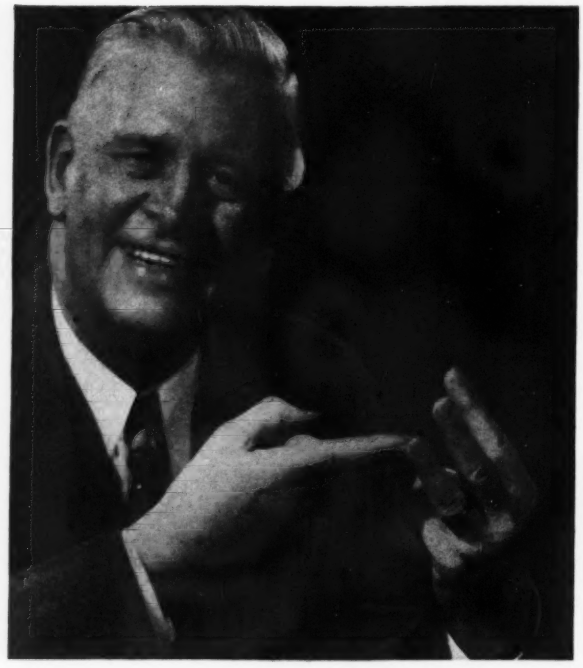
TO PROTECT YOUR PROFITS AND INTERESTS

With the introduction of the 1938 models, Vent-Rite again pledges itself, to the utmost of its ability, to keep the sale of Vent-Rites in Recognized Trade Channels and out of the hands of Chain and Hardware Stores, D.T.U.'s and Mail Order Houses.

ANDERSON PRODUCTS
Incorporated
Cambridge, Massachusetts



Only Vent-Rites can be taken apart for thorough cleaning.



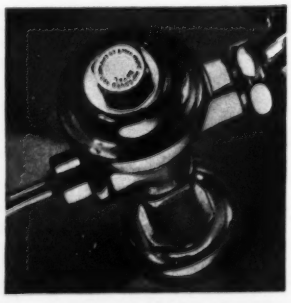
These 3 things

are mighty important to me

1. WHERE IS MY SOURCE OF SUPPLY? 1400 jobbers with Sloan stocks and 50 factory-trained Sloan representatives blanket the country from coast to coast. No matter where you are, Sloan service and Sloan supplies are close at hand. In emergencies you are not left with orphan valves. This is true *only* of SLOAN Flush Valves. Consider this when you buy or specify.

2. WHAT IS THE EXPERIENCE OF OTHERS? In schools, hospitals, hotels and commercial and industrial buildings of every type the vast majority of installations are SLOAN. Nearly four million SLOAN Valves are continuing to give, day after day, their incomparable service. Check any of the installations near you, or ask us for a list of jobs in your locality.

3. HOW MUCH WILL IT COST? Sloan prices are no higher than others but the total cost is much lower. Certified records, sent on request, show costs of ¼c to 1½c per valve per year for maintenance, with water savings as high as 50% after the installation of Sloan Valves. Dozens of makes of flush valves have come and gone in the 31 years that Sloan has been on the market. Their replacement cost would have been saved had the owners originally used SLOAN. Buy now with an eye to the future.



SLOAN VALVE CO., CHICAGO, ILLINOIS

SLOAN FLUSH VALVES

You can tell by the *feel* that it's good pipe

THERE'S a good feel to Bethlehem Steel Pipe when it's cut or threaded—a feel that means, to experienced hands, good, sound pipe. Bethlehem Pipe readily takes the clean, accurate threads that are a sign of soft steel, free from inclusions and hard spots. Bethlehem Pipe is free from scale, inside and out. And above all, Bethlehem Pipe is soundly welded—it is free from pin-hole leaks; free from any danger of splitting or rupturing.

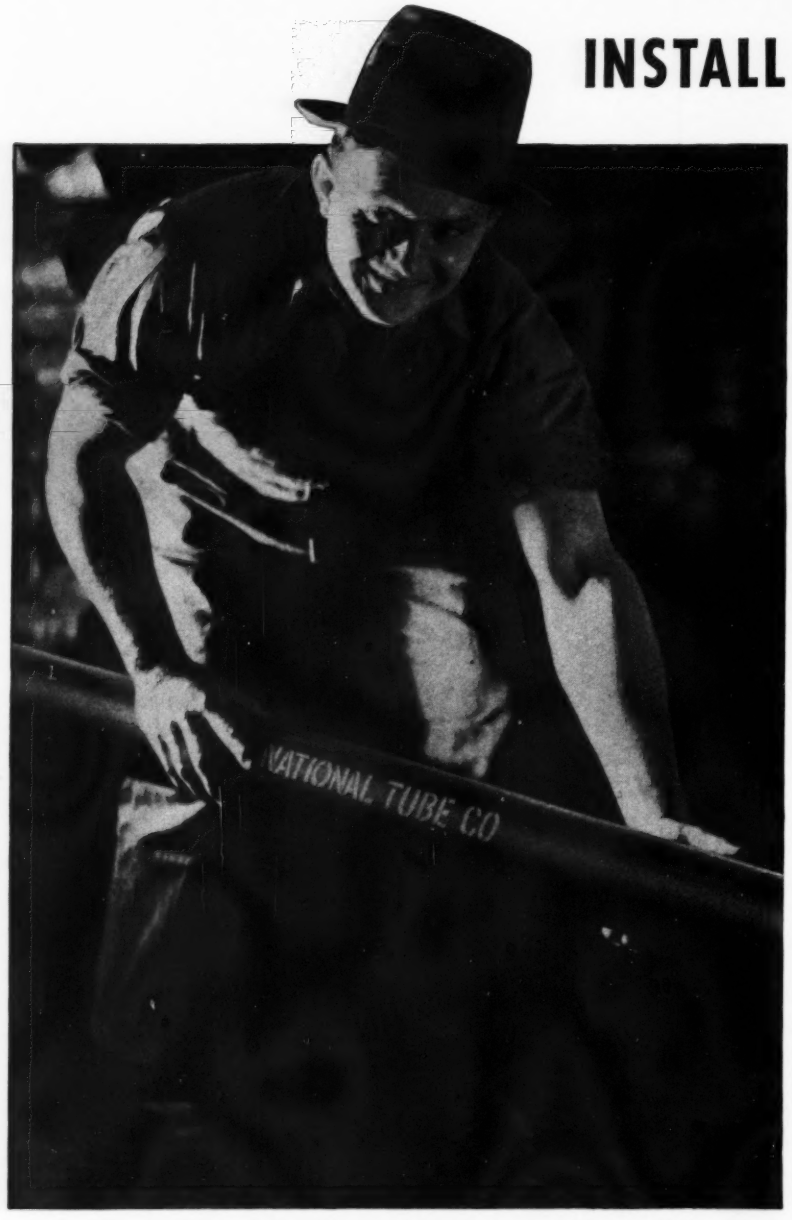
Available through your distributor, in all standard sizes and weights. Either in open-hearth steel or in Beth-Cu-Loy rust-resisting copper-bearing steel.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

How to Save Time *and* Please Customers-

INSTALL GOOD PIPE!



THERE is no saving either for yourself or for your customer when you take a chance on just pipe for small or large jobs. Experience of thousands of plumbing and heating contractors has proved that it pays to use pipe that is easily installed . . . pipe that you can depend on for long-time service without complaints . . . NATIONAL Pipe.

NATIONAL is America's Standard Wrought Pipe. Its threads are strong, smooth and even. It bends easily because it is ductile and strong, and when you put it in your jobs you know that you have provided first quality material. NATIONAL gives long service . . . keeps customers satisfied . . . builds good will and invites future business for contractors who use it.

All butt-welded sizes, ½ to 3-inches, are made Scale-Free, and all sizes 4-inches and under are Spellerized. Both black and galvanized are available in Copper-Steel to resist atmospheric corrosion; also in DUROLINE, a highly improved cement lining, to resist corrosive waters.

NATIONAL is made from ore to finished product in modern mills by experienced workmen who know how to make it right. Every length is subjected to thorough tests and inspections before it comes to you. This care explains its long service and its preference among leading plumbing and heating contractors. On your next job use NATIONAL. There is a distributor near you, always ready to be at your service.

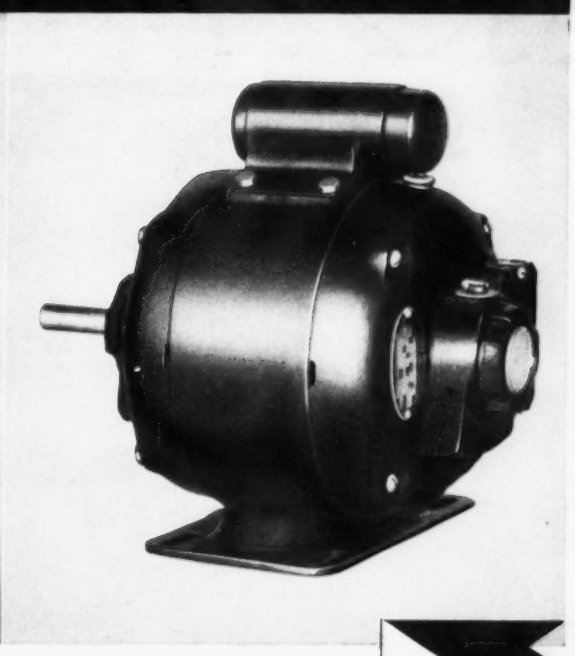
NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

TWO FOR THE PRICE OF ONE



A PRACTICAL SALES AID

A G-E motor on the domestic water systems you sell is assurance—at a glance—to prospects that the electric equipment is of high quality. They know from their experience, and from that of friends, that G-E motors for water systems, washers, stokers, and other appliances are long-lived and dependable. General Electric is a company in which they have confidence.

Add this reputation of the motor to that of the domestic water system you sell, and you have a solid sales front. Thus you can devote more time to increasing sales by emphasizing the benefits and economies of having running water in the home.

Moreover, the long, trouble-free service for which G-E motors are famous helps keep your customers satisfied with your installations—a sure way of getting new business and bringing back customers for additional purchases. General Electric, Schenectady, N. Y.

A RELIABLE MOTOR

THE G-E capacitor-motor designed specifically for water systems operates quietly and efficiently, requires little or no attention, and gives long, care-free service. Here are a few of the many reasons why this motor is reliable:

Indestructible rotor—one-piece cast-aluminum winding, without welded or soldered joints. Has no commutator, and cannot become open-circuited or burn out.

Large oil-storage capacity—oiling is required but once a year.

Long bearing life—wool yarn and oil throwers keep the bearings always supplied with fresh, clean oil.

Quiet—equipped with end-play silencers. Rotating parts carefully balanced. Operation of the motor does not interfere with radio reception.

GENERAL ELECTRIC

Filing No. 8260 070-222

NOW FOR EITHER . . . . . LINE OR LOW VOLTAGE

"GENUINE DETROIT" THERMOSTATS

No. 211 for Low Voltage
No. 311 for Line Voltage

Straight line temperature control, eliminating "cold 70"

Applicable to both heating and cooling

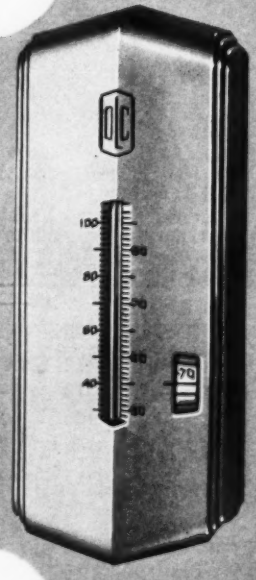
With or without heat compensation

For use on two- or three-wire circuits, low voltage only

Varying electrical load has no effect on compensator

Heating cycle readily adjustable over wide range

Available also in summer and winter, or day and night types, in low voltage only



"GENUINE DETROIT" HUMIDISTATS

No. 197 for Low Voltage
No. 397 for Line Voltage

Incorporates extremely sensitive Friez hair element

Accurate up to 100% relative humidity

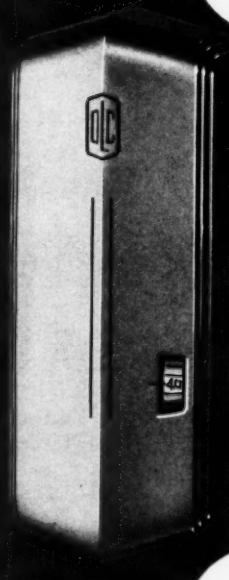
Controls either humidification or dehumidification

No flutter nor danger of corrosion of contacts

Both instruments attractively styled for modern interiors

Low voltage Humidistat and Thermostat carried on an attractive dual mounting plate if desired

Not vulnerable to dust accumulation



ALL THESE ADVANTAGES AT NO EXTRA COST

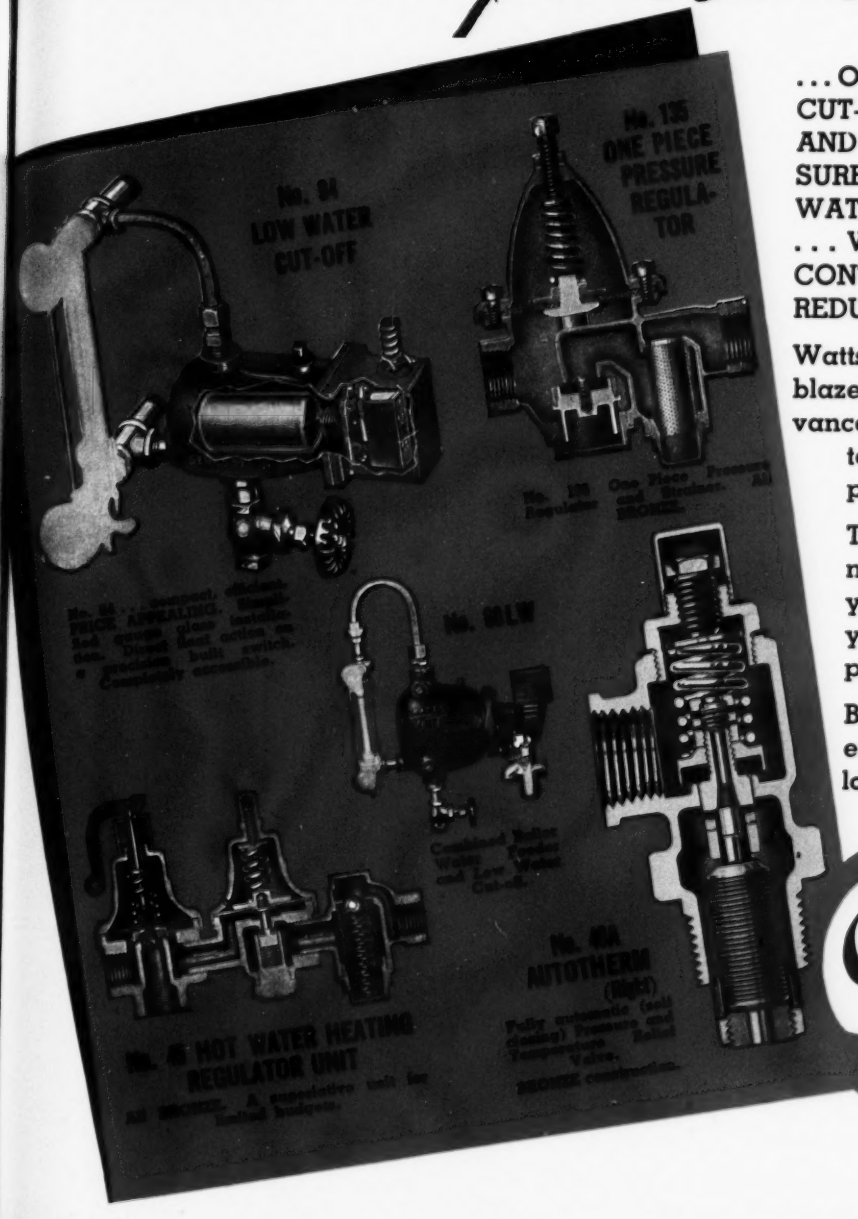
RATINGS . . .

Electrical Load Ratings—
No. 211 and No. 197 for low voltage: 25 watts at 25 volts—A. C. or D. C. • No. 311 Thermostat for line voltage: ¼ hp R. I. motors at 110 volts A. C. • No. 397 Humidistat for line voltage: 50 watts at 110 volts A.C. or D.C.

DETROIT LUBRICATOR COMPANY
DETROIT, MICHIGAN, U. S. A. • 5900 TRUMBULL AVE.
NEW YORK, N. Y.—40 WEST 40th ST. • CHICAGO, ILL.—816 S. Michigan Ave.
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
Canadian Representative—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, Montreal, Toronto, Winnipeg

WATTS LEADS

the Most Complete Line in the World



. . . OF ITS KIND: FEEDERS, LOW WATER CUT-OFFS, PRESSURE, TEMPERATURE AND VACUUM RELIEF VALVES, PRESSURE REDUCING VALVES AND HOT WATER HEATING REGULATOR UNITS . . . WATTS HAS THEM ALL AND WILL CONTINUE TO BUILD UP RATHER THAN REDUCE ITS LINE.

Watts is not content to follow . . . Watts blazes new trails; originates new and advanced units and finds ways and means to manufacture and sell these better products at competitive prices.

This coming year place your business . . . with Watts. Concentrate your buying, and by so doing, swell your bank account and build prestige.

Be sure that you have the latest edition of the complete Watts catalogue — No. 37. Also condensed catalogue and price list, No. 37A. Your jobber has them, or they are yours for the asking.

Check your Stock Today

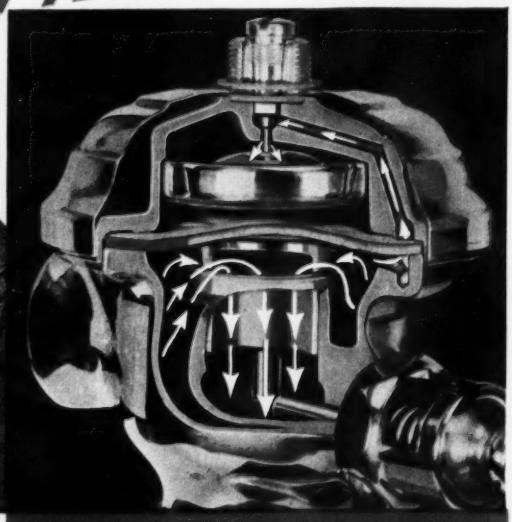
FORCED HEAT DEMANDS WATTS Protection

WATTS REGULATOR COMPANY

Lawrence, Mass.

BUY through your jobber

What do You say ABOUT FLUSH VALVES?



AS a master plumber you are called upon to voice your opinions about flush valves. The building owner, the building manager and superintendent, the general contractor and the architect respect your practical viewpoints. They have confidence in your ability to keep them out of trouble . . . confidence in your knowledge of the details that makes one appliance a better buy than another for specific service conditions.

It is not what *we* say about Watrous flush valves that is so important, it's what *you* say that counts when the subject of flush valves comes up.

Watrous flush valves have been making tremendous progress these past few years because master plumbers are going to bat for them. They are telling the Watrous sales story in much the same way that it is presented in the adjoining column . . . and as a result they are recommending and selling more and more Watrous flush valves.

Read this short sales presentation and then write for complete information on the Watrous line.

THE IMPERIAL BRASS MFG. CO.
1231 W. Harrison St., Chicago, Ill.

Watrous
Flush Valves

HERE IS WHAT MANY MASTER PLUMBERS ARE SAYING ABOUT WATROUS FLUSH VALVES:

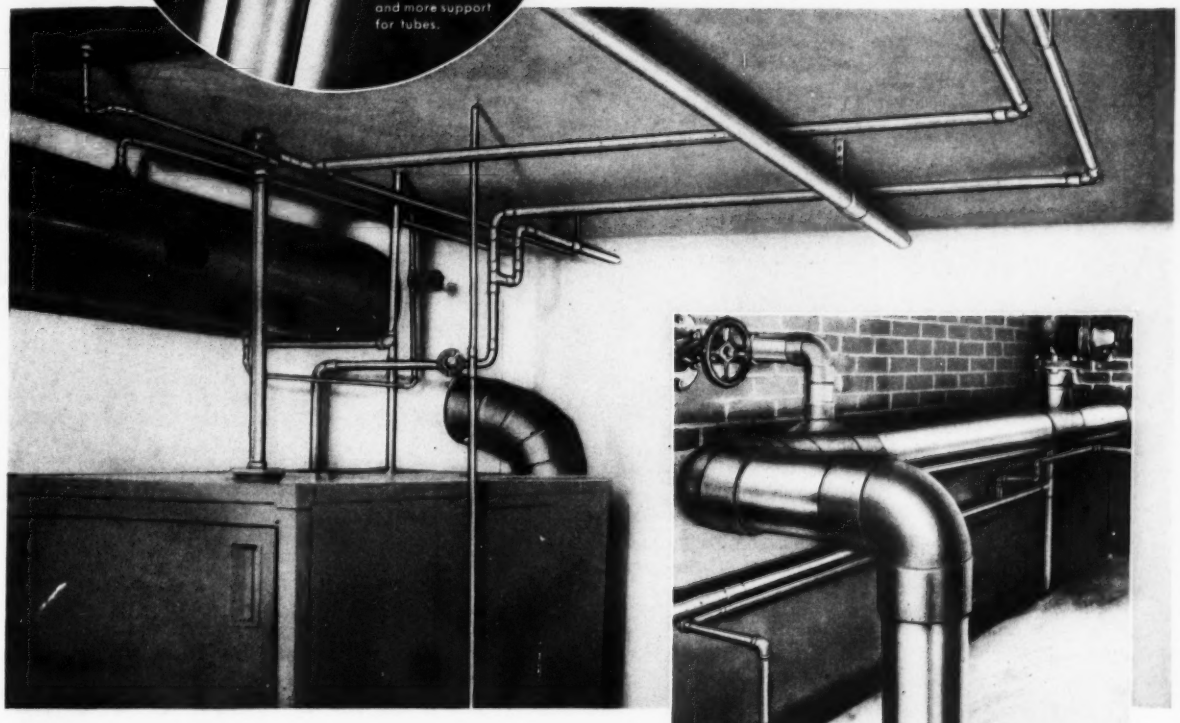
- "This flush valve has a very simple screw driver adjustment so that it is an easy matter to set each valve for the most efficient operation on any type or make of fixture.
- "Then there is the self-cleansing by-pass which is an exclusive feature on Watrous Flush Valves. In every flush valve the length of time the valve remains open depends upon the by-passing of a very small stream of water from the supply side to the chamber above the operating unit.
- "Due to the fact that all water has some mineral content, the by-pass orifice in conventional valves have a tendency to clog up. As the orifice grows smaller and smaller the flushing time grows longer and longer and more and more water is wasted. In extreme cases the orifice becomes closed and the valve will remain open causing a considerable waste of water.
- "In the Watrous valve this can NEVER happen. Each time the valve is operated the by-pass orifice is positively cleaned by the movement of a small pin. The sectional picture of the valve shows it in the open position. The plunger has pushed the pin in the orifice upward and water is now running into the control chamber.
- "The movement of the pin and the flow of water remove any small particles of silt or scale that might have accumulated. During this period the valve is flushing with water running through four large ports as shown by the arrows. As soon as the pressure is again equalized, the diaphragm closes the valve.
- "The large control chamber and water ways make it possible to use this valve in buildings where the pressures vary through a wide range from the top to the lower floors. Watrous valves will operate on extremely low pressures.
- "Watrous Flush Valves are built in both diaphragm and piston types to meet the requirements in every type of building."

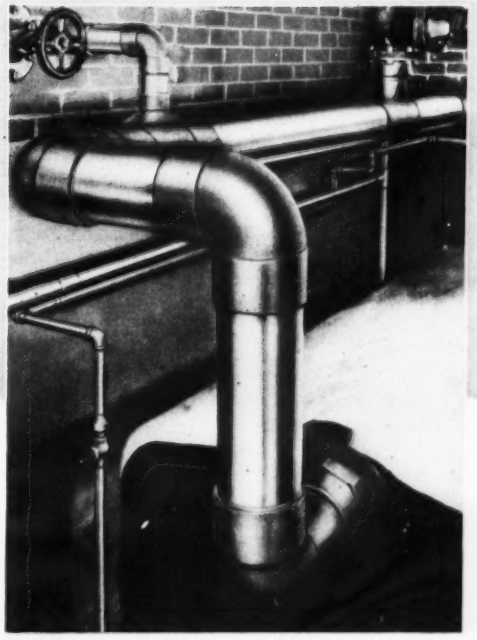
THEY PAY FOR THEMSELVES IN THE WATER THEY SAVE

Anaconda Copper Tubes are phosphorus-deoxidized to increase corrosion resistance and improve physical qualities.
Anaconda Solder-Type Fittings have deep cups to give long, strong bonds and more support for tubes.

4 Good Reasons

for using COPPER TUBE HEATING LINES





(1) Anaconda Copper Tubes and Solder-Type Fittings are being successfully used in hot water, steam, vacuum and vapor-heating systems . . . (2) A complete non-rust installation costs but little more than one of less durable pipe and fittings . . . (3) With forced circulation hot water systems, 10% to 15% greater velocity of circulation is obtained, with the same circulating head . . . (4) Smaller size copper tubes suffice than would be needed with conventional rustable piping. *A complete line of Anaconda Copper Tubes and Fittings is available in sizes from 1/8" to 8".*

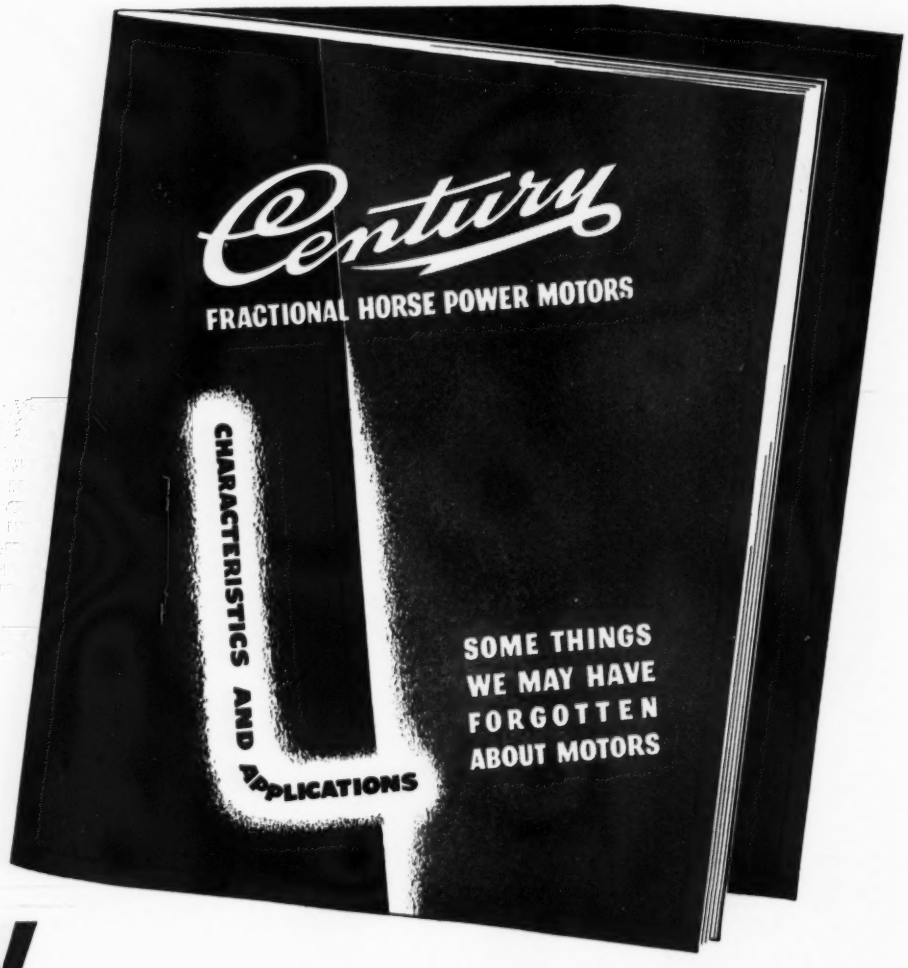
6-inch Anaconda Copper Tubes and Cast Bronze Solder Fittings in the steam heating plant of a large warehouse. Rated output of boiler is 1,368,000 Btu. The other photo shows a residential installation of Anaconda Copper Tubes and Fittings. 3710

ANACONDA
from mine to consumer

Anaconda DEOXIDIZED Copper Tubes

THE AMERICAN BRASS COMPANY · GENERAL OFFICES: WATERBURY, CONNECTICUT

Offices and Agencies in Principal Cities · In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario


Century
FRACTIONAL HORSE POWER MOTORS
CHARACTERISTICS AND APPLICATIONS
SOME THINGS WE MAY HAVE FORGOTTEN ABOUT MOTORS

THIS BOOK *tells..*

HOW *to* SELECT *the* RIGHT MOTOR

This New 24-page book will be of real assistance to you . . . Here is presented in helpful form information concerning the electrical characteristics of all types of Fractional Horse Power Motors—and suggestions as to how they can be most effectively applied to meet the requirements of motor-driven machinery and appliances operating in normal or abnormal surroundings . . . Fully illustrated . . . Send for your copy, if you have not received it . . . **ASK FOR BULLETIN 1039-J . . .**

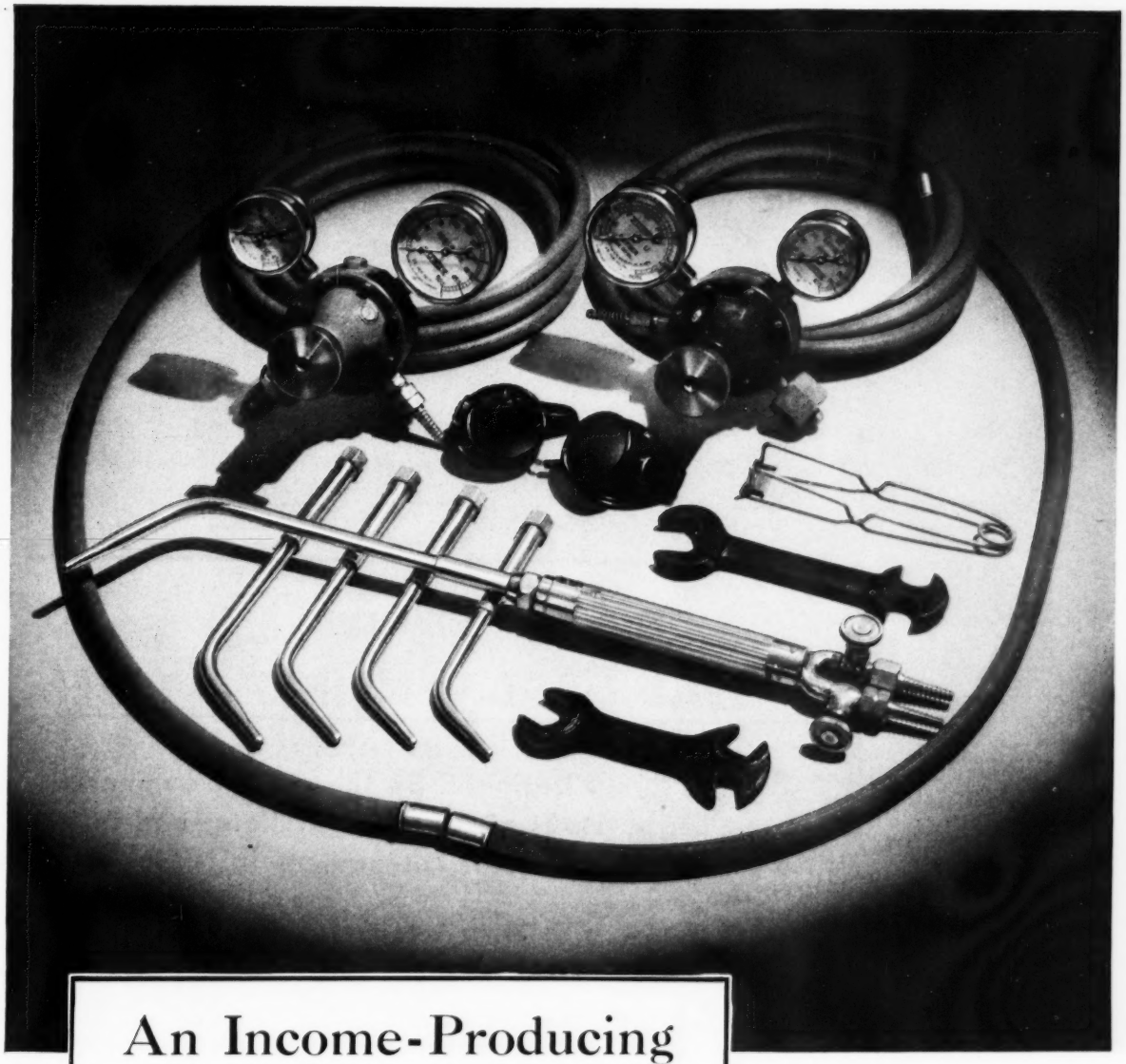
CENTURY ELECTRIC COMPANY

1806 Pine Street • • • • St. Louis, Mo.

Offices and Stock Points in Principal Cities

Century MOTORS

UP TO 600 HORSE POWER



An Income-Producing Welding Outfit . . .

The Purox* No. 4022 Oxy-Acetylene Welding Outfit. Price $62.25

• Have your jobber demonstrate this moderately priced Purox outfit—a complete, efficient, economical equipment assembly for both light and heavy welding. Notice that it includes the standard all-purpose Purox No. 35 Torch, Purox regulators of the Standard Series and all necessary accessories. With this outfit good welds can be made quickly and profitably.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation

UCC

New York and Principal Cities
In Canada: Dominion Oxygen Company, Limited, Toronto

*Trade-Mark

PUROX

WELDING AND CUTTING APPARATUS AND SUPPLIES

PRODUCTS OF A UNIT OF UCC UNION CARBIDE AND CARBON CORPORATION

NOW!

THE NO. 300 ARCO-DETROIT MULTIPORT FOR RADIATORS

It vents 3 times as fast as the average valve of its type.

THE NEW IDEAL FAST-VENTING SYSTEM

- **Designed by the expert engineering staffs of American Radiator and Detroit Lubricator Companies.**
- **Produced by the precision manufacturing methods of Detroit Lubricator Co.**
- **Distributed by American Radiator Co. — Stocks in all warehouses.**

AUTOMATIC one-pipe steam jobs need this Ideal Fast-Venting System. It speeds heating . . . makes it easy to balance the job . . . eliminates costly service calls.

To install it use the No. 300 Arco-Detroit Multiport for radiators and the No. 861 Arco-Detroit Hurivent for mains. You'll balance heating the first time—and balance it better!

The No. 300 Arco-Detroit Multiport sets a new style in valve design. Finished in lustrous black, trimmed with chromium, it combines new beauty with new efficiency.

On your next one-pipe steam job use the Ideal Fast-Venting System for better results . . . for better profits!

THE NO. 861 ARCO-DETROIT HURIVENT FOR MAINS

This valve vents mains 15 times as fast as ordinary valves.

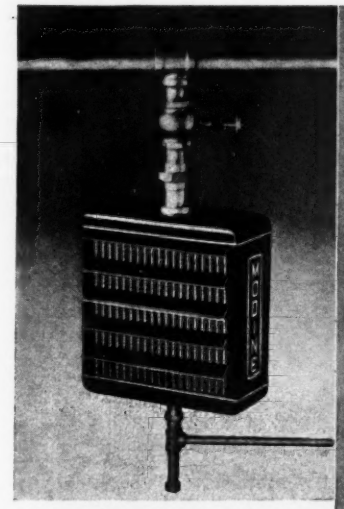
ACCESSORIES DIVISION

AMERICAN RADIATOR COMPANY

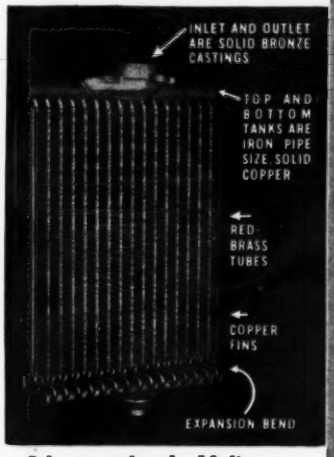
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

40 West 40th Street, New York, N. Y.

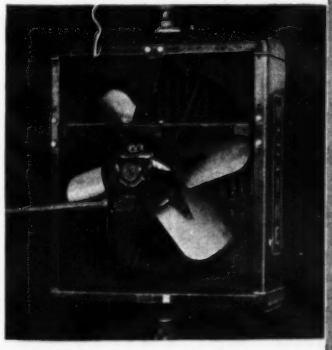
NATIONAL DISTRIBUTORS



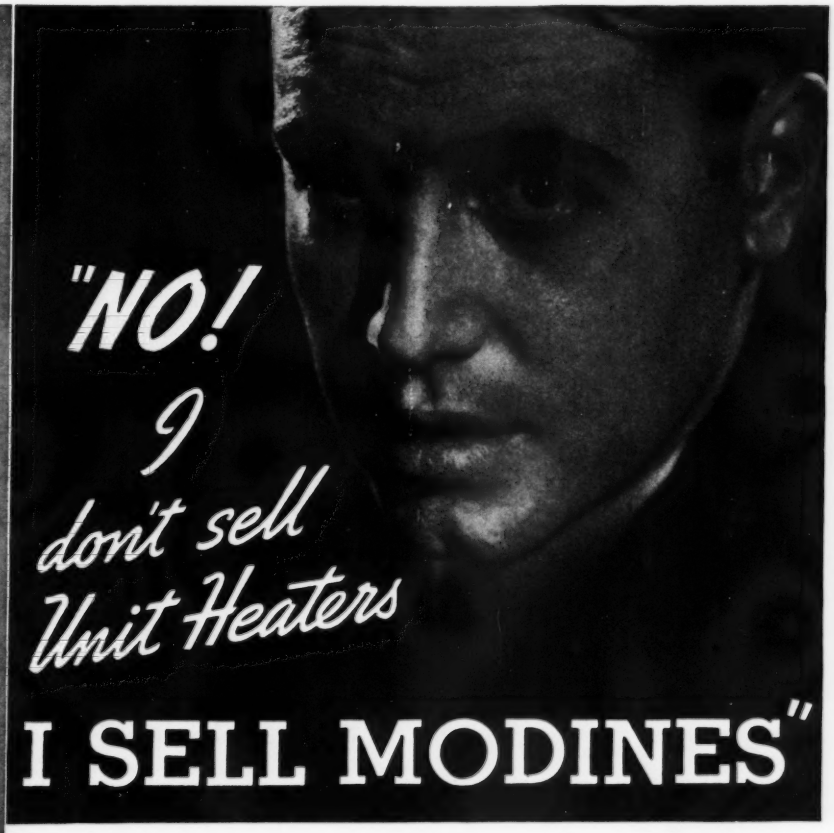
Suspended directly from the steam line, without brackets, rods or straps . . . a Modine patented feature . . . Modines cost less to install.


INLET AND OUTLET ARE SOLID BRONZE CASTINGS
TOP AND BOTTOM TANKS ARE IRON PIPE SIZE SOLID COPPER
RED BRASS TUBES
COPPER FINS
EXPANSION BEND

Inlet to outlet, the Modine condenser is all copper or copper alloy. All steam-carrying passages are cylindrical for excess strength. Metallic bonding prevents possibility of reduction of heat transfer from tubes to fins.



Only Modine has velocity generators, directing and controlling the air stream, producing greater heat throw without increasing power requirements.



● "When it comes to selling—there are unit heaters . . . and there are Modines! Most people know the name 'Modine.' In fact they say 'Modines' when they are speaking of unit heaters.

"That's what a reputation for satisfaction does.

"And when you have a sales acceptance like that for Modine, why make it harder for yourself trying to sell a substitute? It's a whole lot easier to say, '*Yes, sir*, this *is* a Modine'—and then to go on and show the customer all the outstanding advantages he gets with Modine that he can't get in any other unit heater.

"For instance, Modines are built stronger. The *all-copper* condenser can't leak under high pressures and temperatures. The *expansion bend* construction, which Modine has, gives each tube knee-joint movement to expand or contract independently. And there are a lot of other reasons why more Modines are sold than any other unit heater."

Write for Catalog 236.

MODINE MANUFACTURING COMPANY
1722 RACINE STREET RACINE, WISCONSIN

HEATING, COOLING AND AIR CONDITIONING EQUIPMENT FOR INDUSTRIAL, COMMERCIAL AND RESIDENTIAL APPLICATION

PROFIT *by studying displays like these*

A few exhibits at the 4th International Heating and Ventilating Exposition

Thousands of men interested in the progressive strides of one of the nation's most promising young industries are looking forward to an important forthcoming event—the Fifth International Heating & Ventilating—Air Conditioning—Exposition.

Plumbing and Heating Contractors, Consulting Engineers, Dealers and Jobbers—all concerned in a vital way with the modern demands for better living and working conditions—better temperature and air control of industrial operations—will welcome this timely opportunity of studying the impressive displays of 300 leading manufacturers.

You and your associates should certainly attend—

Held under the auspices of American Society of Heating & Ventilating Engineers

The Air Conditioning Exposition

5th INTERNATIONAL HEATING & VENTILATING EXPOSITION

GRAND CENTRAL PALACE JANUARY 24-28, 1938 NEW YORK, N. Y.

Managed by International Exposition Company

7946

...and for GAS too, it's FITZGIBBONS STEEL BOILERS!

If it's a gas heating job—residential, commercial, institutional or industrial—there is a Fitzgibbons Steel Boiler just right for it—a boiler that will burn gas with the same high efficiency and economy for which Fitzgibbons oil or coal burning steel boilers are recognized.

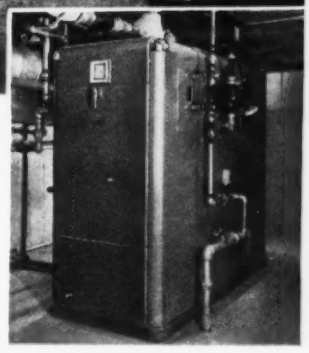
There is a Fitzgibbons heating engineer near you, ready to supply full details. Let him help you work out your gas heating jobs and select the right boiler. His cooperation is yours without obligation.

Fitzgibbons Boiler Company, Inc.

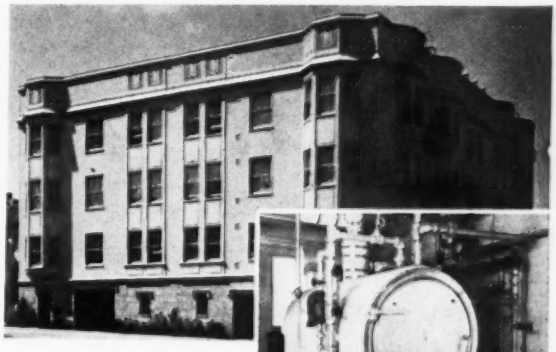
General Offices and Show Room:
ARCHITECTS BLDG., 101 PARK AVE., NEW YORK
Works: **Oswego, N. Y.**
Branches and Representatives in Principal Cities

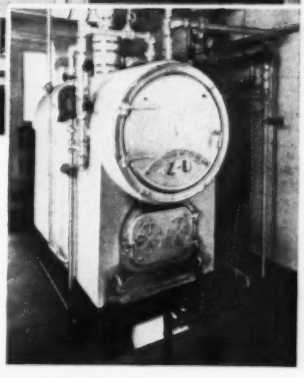
Available also for gas-firing FITZGIBBONS "SPLIT-SYSTEM" AIR CONDITIONERS *Write for Bulletin*

Handsome Winnetka, Ill. residence, heated by a gas-fired Fitzgibbons Boiler.



BELOW — *Apartment in San Francisco, Calif., heated by a gas-fired Fitzgibbons R-Z-U.*





BELOW: *Part of a battery of seven gas-fired Fitzgibbons R-Z-U boilers in central heating plant of U. S. Army Air Corps, at Maxwell Field.*

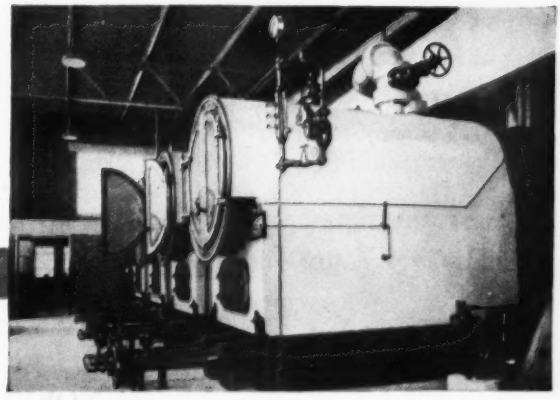
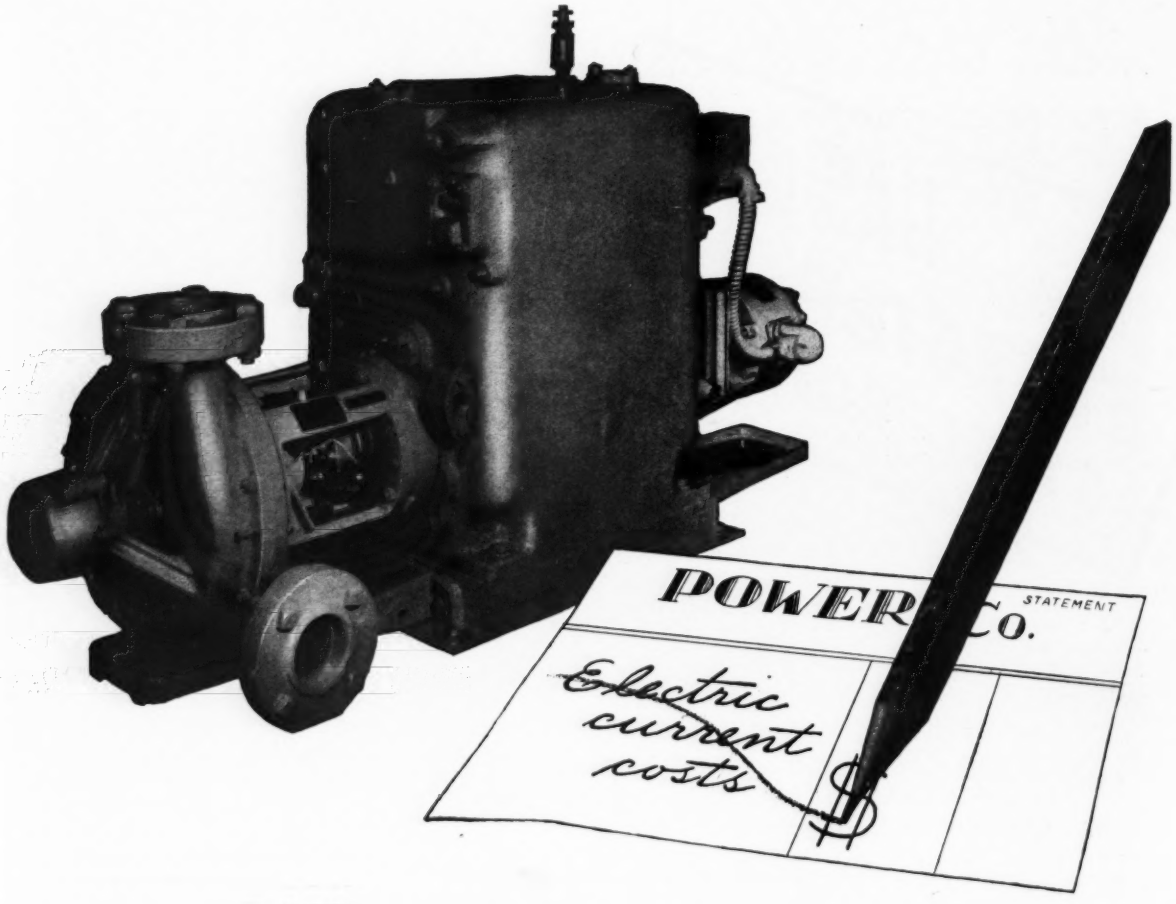


Photo by 4th Photo Section Air Corps, Maxwell Field, Montgomery, Ala.



Why not cross out this expense?

The Jennings Vapor Turbine Return Line Vacuum Heating Pump requires no electric current, eliminating the one biggest expense item in the operation of an ordinary return line pump. This is because the motive power is a special turbine operating on steam direct from the heating system. Steam used to drive the turbine is returned to the system for heating, with little heat loss.

The really important saving promoted by the Jennings Vapor Turbine is in the system itself, however, for this is the only heating pump that can operate continuously with economy. Continuous operation means uniform circulation, and uniform circulation means a big saving in steam.

This pump has but one moving part, no internal wearing parts, and no internal lubrication. It is compact and quiet, and will give long and satisfactory service at the lowest maintenance cost. Bulletin No. 246 tells all about it. It is free on request.

THE NASH ENGINEERING COMPANY

SOUTH NORWALK, CONNECTICUT

ANTHRACITE HEATING NEWS

PUBLISHED BY ANTHRACITE INDUSTRIES, INC.
CHRYSLER BUILDING, NEW YORK

● TWENTY-FIVE MILLION individual advertisements started the 1937-38 campaign of Anthracite Industries, Inc. This is just the opener.

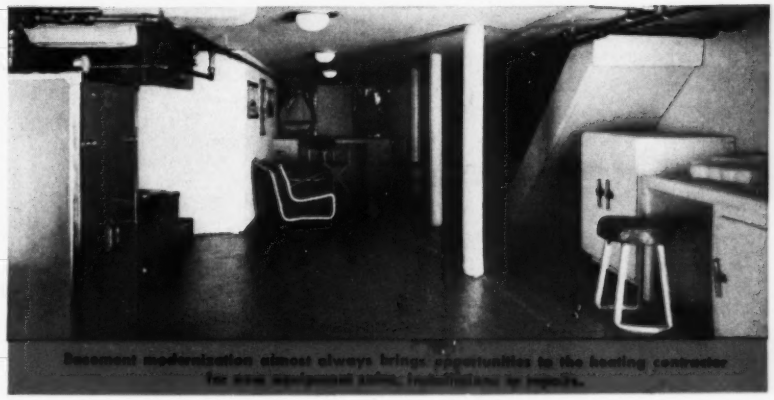
When you consider that these millions of impressive advertisements are concentrated solely in the Anthracite selling area, you gain some idea of the tremendous impetus they will give to Anthracite equipment sales by heating contractors.

In addition to this huge campaign, hundreds of local Anthracite dealers are already running their own campaigns. They are tying in with the effort of Anthracite Industries, Inc.

Equipment manufacturers, and their dealers, are also adding their own great advertising strength to the whole. Thus, all three factors . . . producers, Anthracite dealers and equipment interests . . . are as one in completing one of the strongest promotion efforts ever put behind Anthracite.

A scene from the full-length feature movie, "Green Lights Ahead".

● "Green Lights Ahead," a full-length feature movie produced by Anthracite Industries, Inc., is more than entertainment. It presents practical sales methods for the coal dealer. Among other things it stresses the importance of close cooperation of the coal dealer with the heating contractor. The picture covers three eras. (Scene 1.) The "old timer," steeped in tradition, and who gasps when a customer wants an immediate delivery. (Scene 2.) The present day dealer is being convinced how he can grasp the full opportunities beckoning to him. (Scene 3.) The happy climax. Here modern methods have lifted the 1940 Anthracite dealer to an enviable position. Anthracite Industries, Inc., representatives are scheduling dates for showings. Heating contractors are invited to attend these showings.



Basement modernization almost always brings opportunities to the heating contractor for new equipment sales, installations or repairs.

● "Modern Anthracite Equipment," a 32-page book recently published by Anthracite Industries, Inc., is probably the only book of its kind ever printed. It contains between its covers a complete catalog of various types of Anthracite-burning equipment. For example, it tells how an inexpensive thermostat, and any adequate Anthracite furnace or boiler, provide automatic heat . . . and fueling periods up to 12 hours apart. It explains modern flat-grate furnaces and boilers. It tells how magazine-feed heaters need no fueling attention from 24 to 48 hours. The book describes new automatic Anthracite burners that need no fueling attention all winter long, and automatically remove ash to sealed containers. It describes new Anthracite space heaters, water heaters and cooking ranges. It suggests wide basement-modernization possibilities with modern Anthracite heating. The book will be helpful to every heating contractor. Write today for a free copy.

FLASH

MERCHANDISING SCHOOL

Anthracite Industries, Inc., now operates at Primos, Pennsylvania, a school for modern merchandising of Anthracite and its equipment. Its purpose is to instruct in the most up-to-date and effective methods. In addition to merchandising, the course includes fundamentals of heating, and a study of most modern Anthracite equipment. The faculty is made up of recognized experts in the various subjects. Classes are limited. Enrollment fees are very low. While inaugurated primarily for coal dealers and salesmen, heating contractors and employees find this course equally valuable. Write for descriptive circular, giving full information.

THE ONLY SCHOOL OF ITS KIND

This Seal of Approval appears on Anthracite equipment only after it has passed the most rigid tests in the heating field.

ANTHRACITE INDUSTRIES approved INCORPORATED

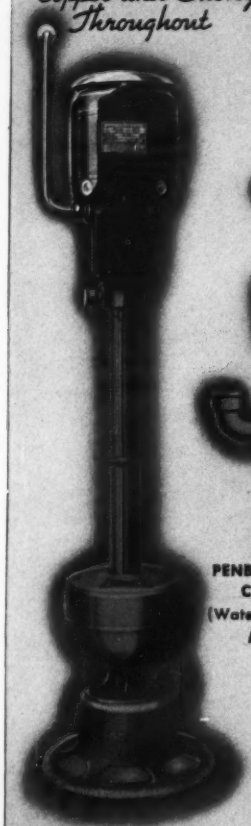
Pennsylvania ANTHRACITE COAL

EASY TO SELL . . .

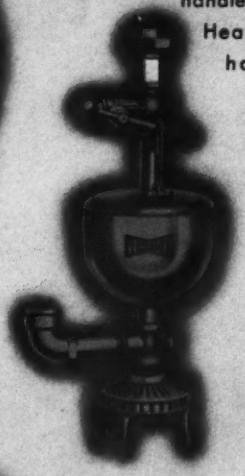
Penberthy Products sell well because they offer exceptional quality at attractive prices. They stay sold because they have the design, materials and workmanship that assure satisfaction under the most difficult conditions. ● There is excellent profit for you in selling Penberthy Automatic Electric Sump Pumps and Automatic Cellar Drainers to handle seepage water — and Penberthy Heating Specialties to modernize hot water heating plants. ● Leading distributors stock Penberthy Products.

PENBERTHY PRODUCTS

Copper and Bronze Throughout



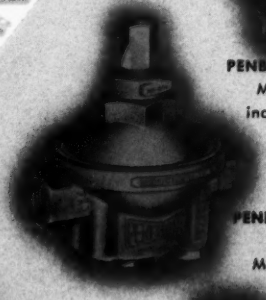
PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP
Made in 6 sizes



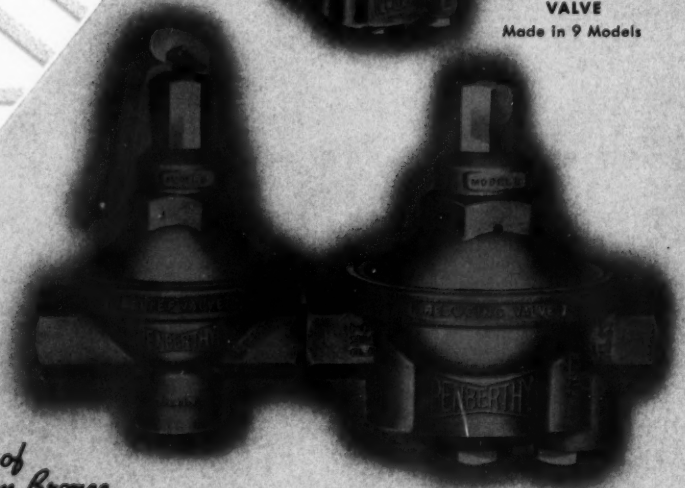
PENBERTHY AUTOMATIC CELLAR DRAINER
(Water or Steam operated)
Made in 6 sizes

PENBERTHY PRODUCTS

PENBERTHY RELIEF VALVE
Made in 14 Models
including In-line Type



PENBERTHY REDUCING VALVE
Made in 9 Models



Constructed of High Grade Steam Bronze

PENBERTHY PRESSURE AND RELIEF CONTROL
Made in 3 Models

and THEY STAY SOLD

PENBERTHY INJECTOR COMPANY *Manufacturers of* QUALITY PRODUCTS *Since 1886*
DETROIT, MICHIGAN • *Canadian Plant,* Windsor, Ont.

Thanks:

"Enclosed is my subscription for DOMESTIC ENGINEERING for another two years. Your paper is one of the best." R. J. H., Shatham, Ont.

Between Ourselves

Ideas and Ideals . . . which make up . . . this Issue . . .

This Month's Cover

At first glance, this month's cover seems to be a radical departure from the cover series which has featured various issues during the past year or more. In reality, such is not the case. The scene which appears on this month's cover will be duplicated in thousands of our readers' homes on Christmas morning. For that reason it has a definite appeal for our industry and the men who compose it.

In one respect, this month's cover also is DOMESTIC ENGINEERING's Christmas card to all its readers everywhere. Each year, the December issue stands as a milestone in the progress of both our industry and its publication.

With the December issue there also is an expression on the part of the entire staff of DOMESTIC ENGINEERING of best wishes and season's greetings to all its readers. This feeling, although sometimes not expressed in so many words, nevertheless is a sincere one and that reason partly explains the choice of cover material on this issue.

Previous covers which have been confined to the many sided business activity of contractor-dealers throughout the country have, no matter how widely varied, not done a complete job until there has been some sort of expression on the fact that the men of our industry are a part of the communities which they serve. There can be no better way of doing this than to show a typical family scene. For that reason this month's cover shows two children who, while they have no relationship to the plumbing and heating industry, on the other hand do express the spirit of Christmas for all children and by so doing may represent and personify the children of a contractor-dealer in Maine or in California, in Florida or in Minnesota, in a city or in a rural area.

Selling Takes the Air

The average person need only look in their own communities to see what a real merchandising job is being done by contractor-dealers. The show windows of the men in our industry rank with the most attractive in other lines of business. Show rooms of contractor-dealers are as smartly styled and sales appealing as can be found either in comparable lines of business or in the more general fields of merchandising.

Direct mail advertising, personal, telephone solicitations and other modern merchandising methods are used widely and with powerful effect by contractor-dealers throughout the country. Hardly a month passes that some notice is not received on a new and effective merchandising method which is being used by a contractor-dealer. For example, one of the articles which appears this month tells of a contractor-dealer who uses templates in selling plumbing and heating. Templates are cut-out designs the same size and shape of plumbing fixtures.

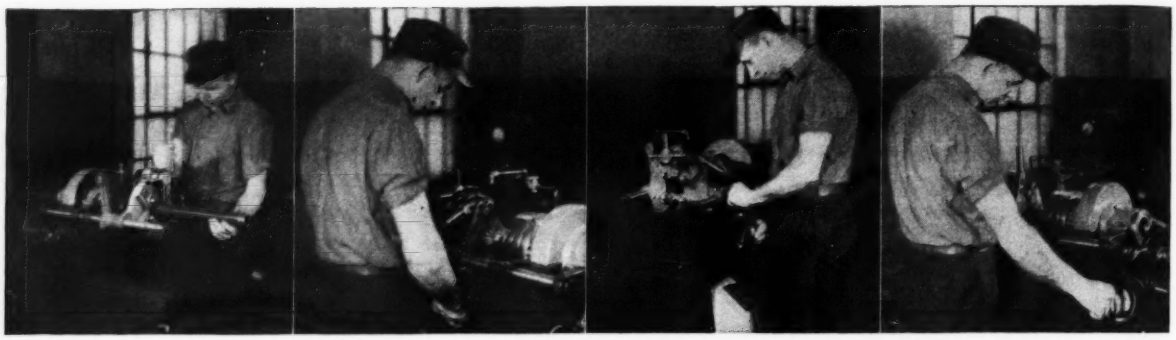
This particular contractor-dealer also has them in colors to represent the various colors in the line of plumbing fixtures which he handles. In calling on a prospect he takes the templates with him and places them in the space which is to be the new bathroom or powder room.

By this means he has found an appeal which has helped push his sales to new heights as well as broadened his circle of customers and prospects.

Still another merchandising approach is featured in one of this month's articles telling of the activities of a California contractor-dealer who uses the radio in his retail advertising ventures. A definite schedule of time on a prominent California radio station has been taken by the contractor-dealer in question. His program, during which he tells of the advantages of modern plumbing, is not only an interesting one, but one which has paid definite and decided sales dividends.

Such action on the part of a member of our industry certainly represents a radical departure from what once was the accepted opinion of merchandising standards for contractor-dealers. Of still greater significance is the fact that this introduces a series of radio programs which can form the basis of similar radio advertising activities by other contractor-dealers in other parts of the country.

Your Editor



TRULY A GREAT MACHINE TO OPERATE

IS THE "TOLEDO" NO. 999—2″ POWER PIPE MACHINE

These illustrations prove that a "TOLEDO" No. 999 is unusually easy to operate.

On the left—the operator is feeding in the cutter knives, cutting off a piece of 2″ pipe in 10 seconds.

Next—scarcely moving his position, he reams the pipe. Feeding the reamer by pressure on the hand feed wheel with his right hand.

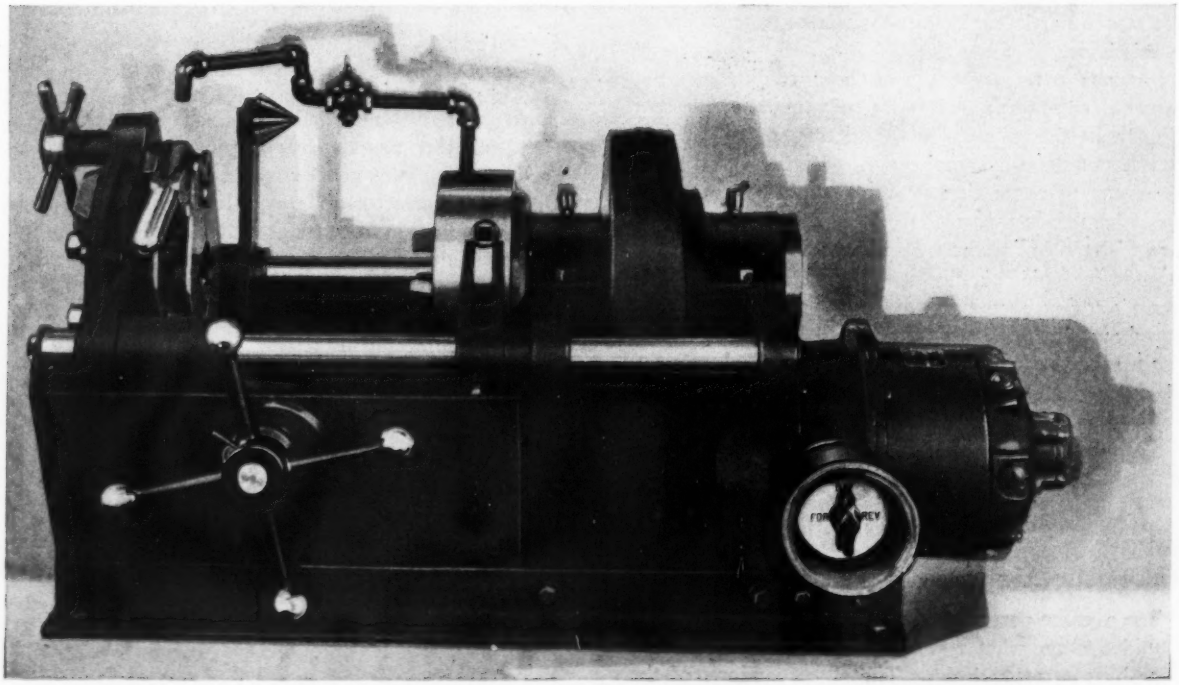
Then—he starts the dies on the pipe with the same operation as reaming.

Photograph on the right—he controls the motor by the forward and reversing switch, conveniently located.

Here's proof aplenty that the "TOLEDO" No. 999 is easy to operate—swift and efficient—the outstanding 1/8″ to 2″ portable power pipe machine on the market today.

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO **NEW YORK OFFICE, 72 LAFAYETTE ST.**

"TOLEDO"
TRADE-MARK REGISTERED



OUR INDUSTRY

December, 1937

New Construction Is Vital

THE sale of shirts, with or without collars attached, may have very little to do with building construction. However, contained in the experiences of shirt makers is a parallel which is very close to a major problem confronting our industry today. The example was brought to mind during a visit of one of your editors in the office of a man who is one of the keenest analysts of trends and conditions in our industry.

This call was made in connection with an editorial survey to determine what further action is necessary to emphasize the fact that today's plumbing and heating values are highest and that prices are low. It was pointed out that soon after the war, when prices were described by the consuming public as being sky-high, there was considerable attention directed to the cost of shirts. Buying resistance made its effect felt and this led to efforts to educate the public regarding true facts about shirts. Since the complaint was the expression of a fact, the shirt industry readily admitted that shirt costs were high. However, in combating this, the important point emphasized was not the cost but what the consumer received in return for what he paid. There was the matter of new cuffs of the French type which required eight buttonholes per shirt as compared with two buttonholes of the older type. Also, collars were attached to the shirts with a consequent increase in cost of manufacture. These and other features made up a superior product which not only justified the increased cost but which was superior to anything available in the past.

The basis of this educational effort was to divert attention from what the public was paying to what the public was receiving. Since increased values were offered, the approach to the problem was sound and the results were beneficial.

Today, the public has the idea that costs in the building industry are exorbitant. News releases are to the effect that even the Federal Trade Commission is expected to launch an inquiry to determine the reason for today's prices of building materials.

Where prices for new construction are higher than in 1929, the matter of how much more is offered today is of great importance. During the depression, with keen competition for the consumer's dollar, on every hand, the difference between a firm staying in business or going through bankruptcy in many cases was measured by its ability to improve its line and the value of its products and services. Consequently, many improvements were developed during the depression. With the upswing in business, it was equally important that improvements be continued in the building industry. Today, there are outstanding values available to the prospective home owner that simply did not exist in 1926 or 1929. For the building industry as a whole, admittedly prices are higher than in the past but just as in the case of shirts some years ago, found in new construction are new conveniences, greater comforts, improved utility and exceptional values.

As for the plumbing and heating branch of the construction industry, not only have products been improved greatly but there is the almost unprecedented condition of prices being from 5 to 45 per cent under those of 1929.

While plumbing and heating can continue independently of new construction, as evidenced by experiences of the last several years; even though 70 per cent of today's market for plumbing and heating is in remodeling; regardless of the fact that 40 per cent of the plumbing and heating market was represented by remodeling in 1926, the peak year, it is essential that new construction be advocated and promoted wherever possible. It is to the best interests of the plumbing and heating branch of the construction industry to further the entire building industry by talking, thinking and living new construction as well as remodeling.

Beyond the advantages which must accrue to our own industry and the construction industry as a whole, are the broad benefits indicated by pronouncements from official Washington and others that only a big building market can insure industrial prosperity and consequently sizable reductions in unemployment. Legislative action already has been taken to aid the building industry.

Prices and Values—

Further analysis of 1937 plumbing and building values that right now is time to

IN THE face of propaganda, which contended that building prices today are high in cost, has risen a wave of rebuttal. Practically every agency touching upon the field of construction has brought forward arguments which have shown that a building dollar spent today buys more and better products than did the same dollar spent in 1929. In no field has the proof advanced on today's prices been stronger than in plumbing and heating.

By every standard of comparison, today's plumbing and heating prices are seen to be lower than those which existed eight or even eleven years ago. The same basis of comparison has revealed that today's plumbing and heating products are better than those of either 1926 or 1929. Today, increased beauty, greater economy of operation and more value are standard equipment in all plumbing and heating products. A recent survey made among contractor-dealers has shown that the prices being charged for plumbing and heating work today are, on the average, 20 per cent below those charged for comparable work back in 1929.

A certain amount of false price propaganda has been directed against all building materials and, in particular, against plumbing and heating. There can be no doubt such propaganda is false, but there can be no doubt either that if this propaganda is left unchecked that it will work serious hardship upon all those connected with the building industry. It is for that reason that interested agencies through the construction field have gone to some lengths to show the real truth about today's prices and values.

For some months past DOMESTIC ENGINEERING has devoted editorial mention to plumbing and heating prices and values which exist today in comparison with those prevalent back in 1929 or 1926. Shown by this material has been the fact that rather than being high, today's plumbing and heating prices are low, while on the other hand, today's plumbing and heating values are high. Further revealed has been the fact that plumbing and heating products today, whether for new construction or modernization work constitute the biggest bargain in the entire building construction field.

Other agencies have been doing similar work, which has shown that building in general today is at prices extremely attractive to the prospect for home building or modernization. Since it is a true fact that no one agency in an allied field can succeed disproportionately to other factors in the field, it behooves the members of our industry to be conversant with the facts on prices and values throughout the building construction industry. As an important and integral part of the building construction industry, plumbing and heating men are in a key position to advance construction throughout the country by spreading the truth about today's building prices. By so doing, not only will they be aiding the great industry upon which their own field of business activity touches, but they also will be doing much to increase their own particular business. This is shown by the simple statement that a prospect for a new home is also a prospect for a plumbing and heating installation.

ASPECTS OF CONSTRUCTION

So the true facts about other aspects of construction work other than plumbing and heating may be made available to the men on the firing line in our own industry, this article on the succeeding two pages presents a price comparison between 1926 and 1929 houses with those which are built today. This material presents a point by point comparison not only of prices for the various factors which enter into construction, but also of the increased values which feature those factors today. This material is reproduced through the courtesy of *American Builder* Magazine.

Not only does the prospective home builder today receive more dollar for dollar actual value than he did in years past, he also benefits from the fact that contributory agencies constantly are making the problem of home building increasingly simple. As one example of this fact, the next several pages of this article show a comparison of plumbing and heating products of today with those of eight and eleven years ago. One of the chief facts shown by this point by point comparison is, naturally, that today's products are infinitely superior to their predecessors. Scarcely less dramatic, however, is the fact that plumbing and heating products today

(Turn to Page 47)

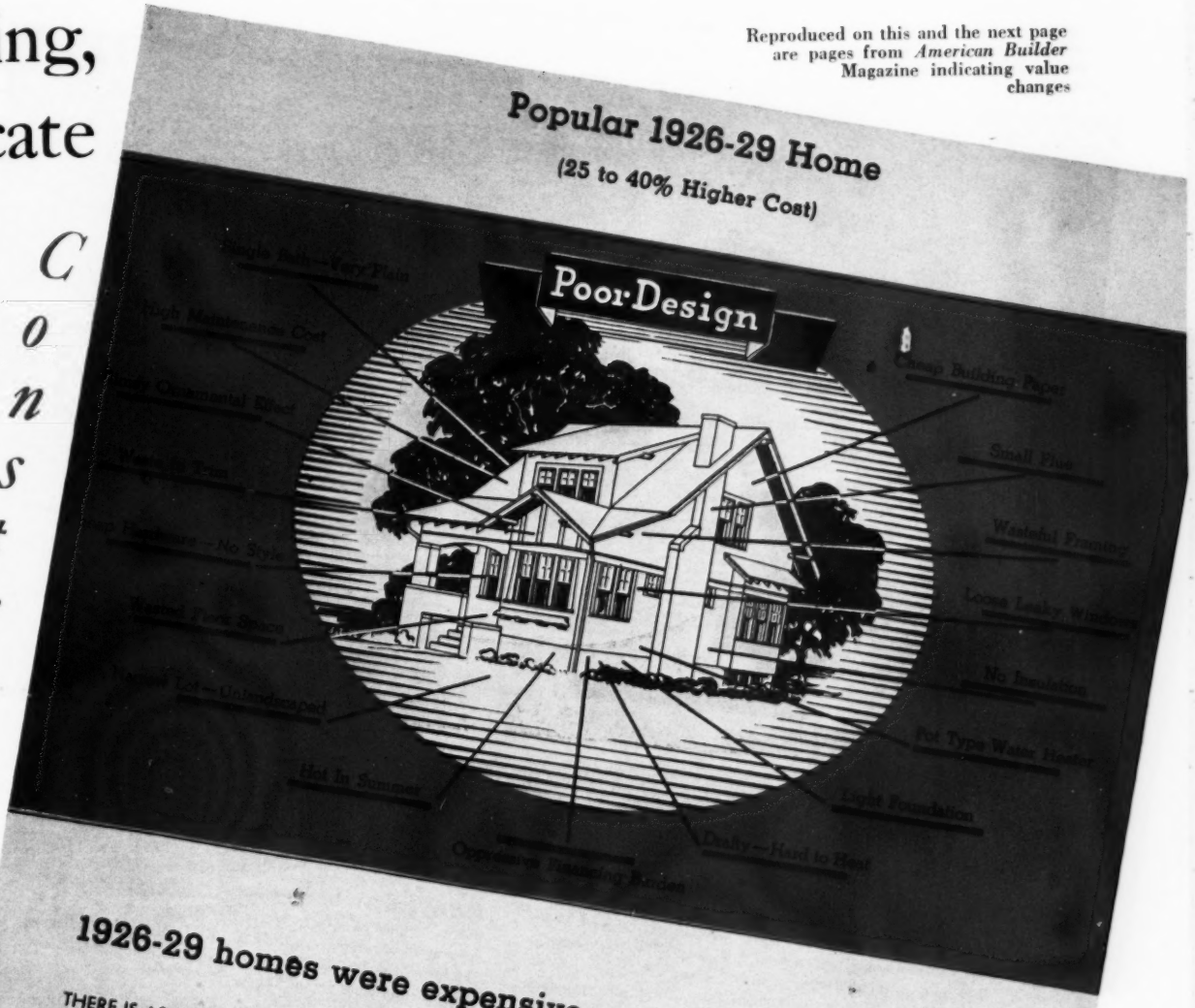
A Comparison of 1926 and 1937

heating,

indicate

buy *Construction*

Reproduced on this and the next page are pages from *American Builder* Magazine indicating value changes



1926-29 homes were expensive . . . .

(floor plan on p. 166)

THERE IS AS MUCH DIFFERENCE between the home of today and the 1926-29 house as there is between the Model T Ford and today's V-8. Just take a look at the popular house of 1926-29 above—it was an advance over previous years, but pretty expensive and poorly equipped in comparison with the high standards of 1937.

THE 1926-1929 HOUSE COST MORE to build, and it cost more to operate. Land, labor, materials, financing costs and profit were all greater than today.

AS TO VALUE AND COMFORT, just hark back a decade and note some of the features we did NOT have then. HEATING—was non-automatic—boilers and burners did not have the efficiency of today—no air conditioning. INSULATION—very little automatic equipment. KITCHENS —none of the gleaming, scientific, labor-saving devices of today—few cabinets—small storage space. CLOSETS —too few and frequently dark, deep and difficult.

PLUMBING—USUALLY ONE BATH ONLY, and that quite plain. Little use of copper and brass pipe. INSULATION—few houses were properly insulated, and materials of insulation were not as scientifically developed as they are today. FLOOR PLANS—rooms were frequently boxy, with space wasted—poorly lighted—an architect was seldom used. See floor plans of above house on page 166 for a good sample of the plan of that time.

CONSTRUCTION—insufficient importance was given to heavy foundations, heavy building paper, tightly built windows, plaster cracks, time-resisting materials.

Construction

Efficient 1937 Home

(25 to 40% Greater Value)

1937 homes have high value . . .

(floor plan on p. 166)

CONSIDER NOW THE HIGH VALUE HOUSE of 1937. It is scientifically planned, and packed with improved labor-saving, comfort-giving features and equipment. Even though such items as air conditioning, insulation, step-saving kitchen, streamlined bathrooms, have been added, its total cost is still less than 1926. And maintenance cost has practically been cut in two.

BUILDERS ARE MORE EFFICIENT TODAY—use modern power equipment—employ good architects—waste less floor space—figure a smaller overhead and profit.

INSULATION—walls and ceilings thoroughly insulated with improved, scientifically developed products—weather-tight construction—greater use of heavy building paper—tight factory-built windows—weatherstripping.

TODAY'S HIGH VALUES INCLUDE: HEATING—automatic, highly efficient, healthful, attractive—air conditioning—concealed radiation. KITCHENS—pleasing—sanitary—efficient—cabinets to save steps and work—laid out and built scientifically.

PLUMBING—COPPER AND BRASS PIPE—beautifully styled fixtures—two and three bathrooms.

FINANCING—THE 1926-29 HOMES were burdened with an oppressive load of initial and continuing financing costs—second and third mortgages, land contracts, bonuses, renewals. Today's method costs 85% less.

FLOOR PLANS—compact, convenient, efficient—builders spend more time on planning. See page 166 for floor plan of the modern house above.

This page and the one preceding show the changes which have occurred during the past few years and they also serve to indicate the increased values that are to be found in building. This page has been reproduced from *American Builder* Magazine

actually are easier to own since they cost less and require less attention on the part of the home owner.

One other factor which makes all building materials easier to purchase and consequently makes a new home that much closer to the average individual, is the fact that financing rates are lower and do not include many of the former practices, which are now recognized as being unsound. The following comparison shows how the burden of financing has been lightened as the years passed and how, in the short span of eight years, the portion of the building dollar which goes for financing has been cut.

Financing

Past—

1. Interest rates were high, 6 per cent on first mortgages and 7 per cent on second mortgages being considered reasonable.
2. Most mortgages were for short terms, requiring frequent and costly renewals.
3. Few if any plans included amortization features.
4. When original equity was less than 40 per cent there were numerous instances of contracts sold for 40 per cent discount; 15 to 25 per cent commission was charged on three to five year second mortgage financing; at least two-thirds of homes purchased required secondary financing.
5. Refinancing costs were very high.
6. Financing costs ranged from 6 to 15 per cent of the total value of a home constructed.

And Present—

1. Interest rates in most sections of the country are at exceedingly low levels; in many cases all time lows now are in force.
2. The majority of mortgages are for longer terms, cutting down or eliminating renewal charges.
3. Most mortgages include some amortizing provisions.
4. Because of the mortgage set up in force at the present time there is little need for refinancing since mortgage money can be obtained when the owner has as little as 20 per cent equity. Commission rates also have been cut to a great degree. Few homes built today require secondary financing.
5. Refinancing costs either are non-existent or at lower rates than formerly.
6. Financing costs on an amortizing single mortgage type now run about 2½ per cent of the total value.

An equal saving is in force for modernization money. Largely through the efforts of FHA, loans for modernization work can be secured easily and at lower rates than before. Such loans frequently have amortizing provisions and are at lower rates than before. When all of these facts are considered it will be seen that the contractor-dealer has a powerful sales argument to use upon his prospects. For not only are plumbing and heating products at bargain prices and expanded values today, but it also is a comparatively simple matter for building and money to be secured by the public. All of these factors combine to reduce drastically the cost of financing.

What Our Readers Say

From L. Asher, Anderson Products, Inc.: "I have read with very much interest articles appearing in DOMESTIC ENGINEERING having to do with the prices and values of today in comparison with those of years gone by. I think this is a splendid undertaking and should result in a lot of good for the industry."

From H. D. Hexamer, Excelso Products Corp.: "There has been a steady reduction in cost . . . . During that time the products have been improved. These improvements have occurred in two ways—first, by additions to the line which permit greater sales. The second step towards greater value is through product refinement. This obviously means an increase in value. We welcome the opportunity to cooperate in this campaign."

From C. A. Kuebler, Uniflow Manufacturing Co.: "We have already called the attention of our salesmen to the fact that the rise in prices, on pumps and other plumbing material, has been very slight, and they should do everything possible to acquaint jobbers and dealers with this fact, and offset any incorrect information that these materials have gone up like other consumer products."

From M. J. O'Brien, Interstate Plumbing Supply Co.: "Will you kindly refer to the November issue of your magazine, DOMESTIC ENGINEERING, to the article entitled, 'Our Industry.'

"It is absolutely true that false propaganda has been directed against the building industry in general, and against the plumbing and heating industry in particular.

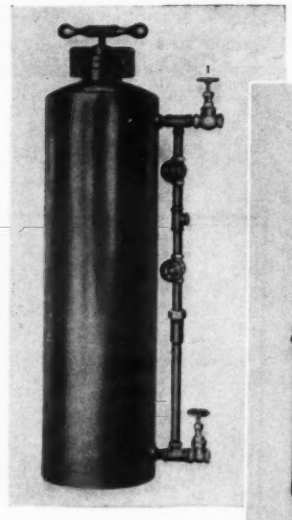
"I was wondering if it would be possible to have 25 sets of this article, made up as it is on pages 57 to 70, inclusive.* If we had this information in sheet form, we could give it to the various FHA offices, banks and builders, and acquaint the trade with this information, and I believe they will be surprised to know what progress has been made and that the materials cost less today."

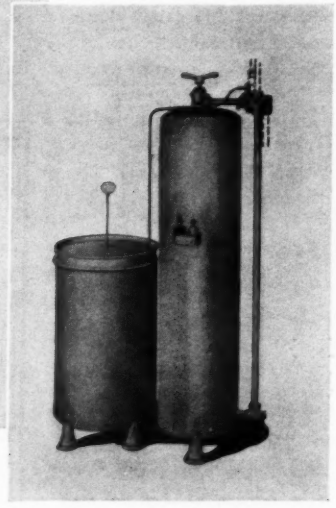
"Bathtub prices are 63 per cent below the base price of 1926," George E. Hoffman, chairman of the Sanitary Cast Iron Enameled Ware Assn., announced. Mr. Hoffman is manager of the plumbing and heating sales department of Crane Co.

*Editor's Note: A limited supply of these reprints are still available for distribution. Apply to DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago.

Water Softeners

Past





Present

Old Model

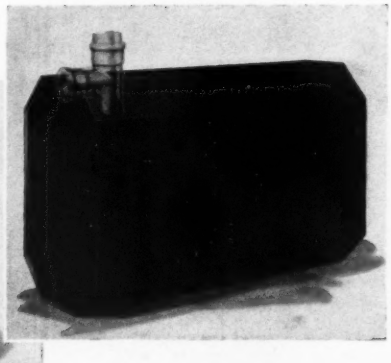
1. Construction: All black iron.
2. Capacity: 10,000 grain.
3. No brine tank and multiple hand valves.
4. **Retail price** **$95.00**

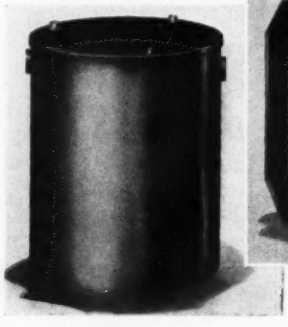
Present Model

1. Construction: Galvanized hot dipped or porcelain enameled.
2. Capacity: 10,000 grain.
3. With brine tank and single control valve.
4. **Retail price** **$85.00**

Septic Tanks

Present





Past

Old Model

1. Design: Vertical cylindrical type, comparatively short flow and somewhat limited sewage digestion.
2. Capacity: 200 gal. net working capacity minimum standard size.
3. Collar construction: Plain collars, no provision for calking or making tight connection.
4. Service: No provision for servicing except by excavating entire tank.
5. Sludge removal: Entire top of tank removed to permit access to sludge chamber.

Present Model

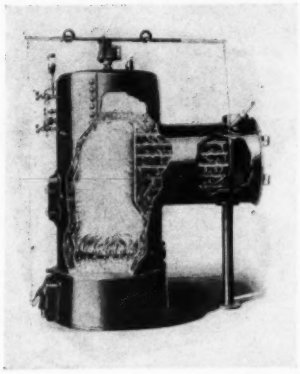
1. Design: Improved horizontal type, longer flow and better sewage digestion.
2. Capacity: 235 gal. minimum working capacity.
3. Collar construction: Shoulder in intake collar for calking and making tight joint.
4. Service: Top intake construction makes tank accessible without digging.
5. Sludge removal: Sectional cover allows sludge removal with minimum excavation.

6. Ventilation: Gases from tank circulated through house stack unless trap was provided in soil line.
7. Installation cost: Approximately 125 cu. ft. excavation required.
8. **Regular retail price.....$48.00**

6. Ventilation: Gases sealed in tank at intake and circulation fresh air provided through soil stack.
7. Installation cost. Approximately 90 cu. ft. excavation necessary.
8. **Regular retail price $29.50**

Steel Boilers

Past



Present

Old Model

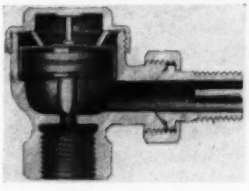
1. Rating: 800 sq. ft. steam, e.d.r.
2. No jacket.
3. No insulation furnished.
4. No low water cutoff or protector.
5. No provision for internal submerged hot water coils.
6. No special stoker or oil-burning appurtenances.
7. High water line and long boiler-room requisites of installation.
8. Steam gauge and tri-cocks exposed.
9. No styling, beauty or color appeal.
10. **Trade price: $260 f.o.b. factory.**

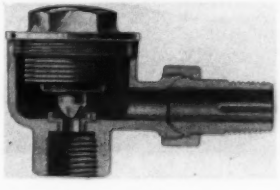
Present Model

1. Rating: 901 sq. ft. steam e.d.r.
2. Fully enclosing jacket.
3. Jacket thoroughly insulated.
4. Trade price includes low water cutoff.
5. Submerged instantaneous or tankheater hot water coils provided for in boiler.
6. Special stoker and oil-burning control tappings, draft stabilizer and two-way base.
7. Water line 44 in., overall boiler and jacket length 60 in.
8. Steam gauge and tri-cocks recessed.
9. Colorful, trimmed in chromium and streamlined.
10. **Trade price: $223 f.o.b. factory.**

Radiator Traps

Past





Present

Old Model

1. Capacity: 100 sq. ft. of radiation.

Present Model

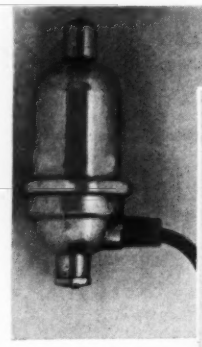
1. Capacity: 200 sq. ft. of radiation.

2. Thermostat consisted of one chamber which, in turn, was made up of two diaphragms.
3. Valve pin contacted body of trap which was subject to wear at this point.
4. Unit had small body and short connecting tail-piece.
5. Thermostat was held in place by spring attached to top diaphragm.
6. Made in ½ in. size only.
7. **Price** **$4.50**

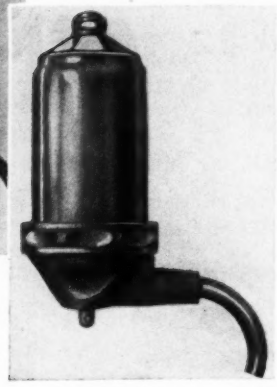
2. Thermostat of bellows type with seamless brass shell and formed by a hydraulic process.
3. Valve pin contacts renewable seat which can be easily replaced if wear occurs.
4. Larger body and longer tail-piece—meeting Manufacturers Standardization Society standards.
5. Thermostat rigidly attached to cap; entire unit interchangeable in all traps of this size.
6. Made in ½ by ½, ½ by ¾ and ¾ by ¾ in. sizes.
7. **Price** **$4.20**

Radiator Valves

Past



Present



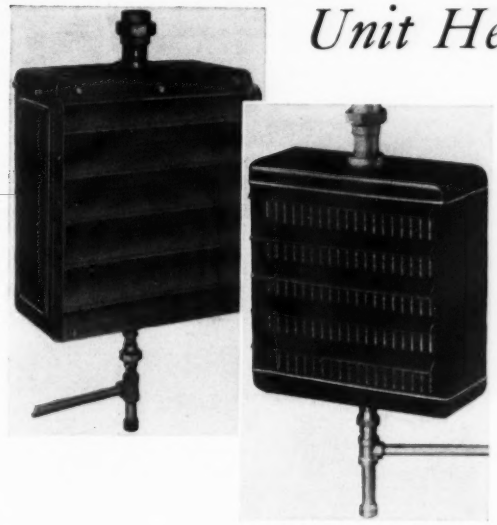
Old Model

1. Venting: Obstructed by disk which had to be lifted by pressure before venting could take place.
2. Float Construction: Conventional tolerances, thermostatically plus or minus 12 deg. Fahr.
3. Take Apart Feature: Conventional round union coupling with lead washer. Required strap wrench to take apart.
4. Bellows: Seal type, heavy wall, sluggish, uncertain action, three live convolutions.
5. Base: Round brass forged.
6. Packing Gland: Conventional type.
7. Adjustment: Too inaccessible and frail in construction. Impractical screw driver slot for adjusting.
8. Weight: 3¾ ounces.
9. Height: 3⅜ in.
10. Diameter: 1⅛ in. shell.
11. Finish: Nickel plate.

Present Model

1. Venting: No disk or ball used. Straight line venting, modulating adjustment and large orifice.
2. Float Construction: Improved diaphragm with closer tolerances, thermostatically plus or minus 7 deg. Fahr.
3. Take Apart Feature: Octagonal union nut with copper armored asbestos gasket. Taken apart with ordinary open end wrench.
4. Bellows: Open atmospheric type, thin wall, quick action, seven live convolutions.
5. Base—Formed brass forging with flat sides.
6. Packing Glands: Improved.
7. Adjustment: Readily accessible. Special adjusting pin of correct strength furnished with each valve.
8. Weight: 5 ounces.
9. Height: 3¾ in.
10. Diameter: $1\frac{7}{16}$ in. shell.
11. Finish: Chromium plate.

Unit Heaters



Past

Present

Old Model

1. Appearance: Box-like casing with joints in metal visible—protruding nuts and bolts.
2. Expansion bend: Only allowance for expansion and contraction provided by "free floating" condenser which was attached to upper tank—the lower end allowed to move freely.
3. High ratio of iron to copper in condenser. Tubes and fins were copper but top and bottom tanks were of iron. Electrolysis caused failures.
4. Tubes were *soldered* to header plates. When exposed to high temperatures, frequent failures resulted.
5. No velocity generator included in construction of the unit.
6. Ratings based on tests conducted by a university.
7. **List price** **$200.00**

Present Model

1. Appearance: Rounded corners, no boltheads, nuts or joints in casing visible on face and side of unit.
2. Expansion bend: Allows each condenser tube to expand and contract individually. Parallels high pressure boiler practice and permits use of unit on fluctuating steam pressures up to 150 lb. without distortion of tubes and resultant leaking.
3. Copper and copper alloy construction throughout. All steam carrying passages are of non-ferrous materials to reduce corrosion by electrolysis.
4. No gaskets, bolts or screw joints in condenser. All steam-carrying passages brazed and welded into a single unit.
5. Velocity generators straighten air stream.
6. Ratings in accordance with standard code of A.S.H.V.E. and I.U.H.A.
7. **List price** **$142.80**

Shallow Well Pumps

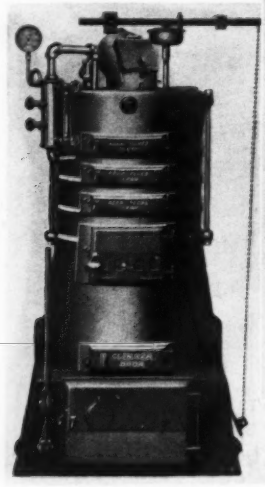
Old Model

1. Capacity: 200 g.p.h.
2. 30 gal. tank.
3. Water glass gauge to indicate water level in tank; pressure gauge.
4. To compensate for belt stretching it was necessary to remove four bolts and move the motor over.
5. Belts frequently stretched 1 to 1½ in.
6. A device to prevent oil on the piston rod from getting into the crankcase frequently would wear and allow some water to get through.
7. Single pole switch.
8. **Retail price** **$125.00**

Present Model

1. Capacity: 265 g.p.h.
2. 42 gal. tank.
3. Automatic air volume control and water level gauge.
4. To compensate for belt stretching it is only necessary to move a nut which raises the motor base.
5. Belts seldom stretch as much as ¼ to ½ in.
6. An automatic, self-adjusting piston rod wiper to prevent water from getting into the oil is incorporated into the design.
7. Two pole switch.
8. **Retail price** **$75.00**

Round Boilers



Past

Present

Old Model

1. Appearance: Boiler was not jacketed; had no color or trim.
2. Design: Comparatively short fire travel and less contact with water bearing areas.
3. Insulation: None.
4. Gauges: Placed on exterior of boiler.
5. Height: 67⅜ in.
6. Width: 35¾ in.
7. Water line: 52½ in.
8. **Trade price** $149.00

Present Model

1. Appearance: Heavy gauge enamel jacket finished in colors with nickel trim.
2. Design: Longer fire travel. Fire has broader contact with water bearing areas.
3. Insulation: Complete.
4. Gauges: Either recessed or streamlined in appearance.
5. Height: 62$\frac{5}{16}$ in.
6. Width: 29⅜ in.
7. Water line: 51$\frac{1}{16}$ in.
8. **Trade price** $111.00

Shower and Tub Combinations

Old Model

1. Trim: China—Subject to breakage, cracking and chipping, requiring replacement.
2. Finish: Nickel—Requiring constant polishing to keep clean. Tendency to wear off from constant polishing.
3. Shower arm: China wall flange, metal ball joint and shower head without self cleaning provisions.
4. Mixing valve: China wall plate and handle.
5. China handles and escutcheons. Spindles on the valves with square ends and the handles with square broaching. Handle tends to loosen.

Present Model

1. Trim: Metal—Insurance against cracking, chipping, injury to hands, etc.
2. Finish: Chromium—Brilliant finish. Easily cleaned with water or dry cloth. Permanent finish.
3. Shower arm: Metal wall flange, ball joint with volume control and self cleaning shower head.
4. Mixing valve: Metal wall plate and handle. Adjustment on wall plate permits easy installation.
5. Metal handles and escutcheons. Spindles have corrugated ends and handles have corrugated broaching. Set screw is concealed by china index.

6. Lift knob pop up waste with china knob—Heavy in construction and bulky in appearance.

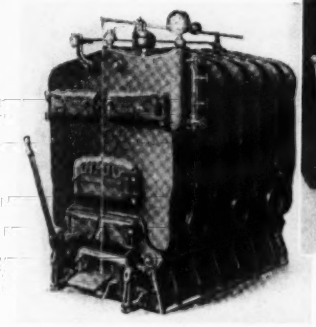
7. List price $44.95

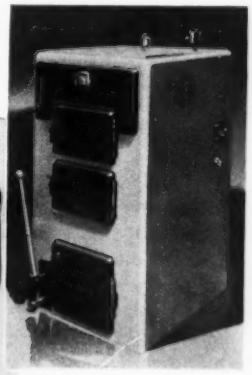
6. Lever handle pop up waste. Compact, sanitary, efficient and easy acting.

7. List price $36.10

Square Boilers

Past





Present

Old Model

1. Boiler rating: 1,000 sq. ft.
2. No jacket and no color.
3. No insulation. Asbestos covering on boiler was extra.
4. Gauge and water trimmings stood high above the boiler. Trimmings were exposed to breakage.
5. Dust settling in an asbestos covering is almost impossible to clean.
6. Handle cast as part of the door absorbed heat from the boiler.
7. Small size doors make firing and removal of ashes an extremely difficult operation.
8. Draft door in front. Chains from damper regulator ran in front of fire door.
9. Dependent entirely on the use of boiler putty to seal spaces between sections.
10. No provision for built-in type domestic water heater.
11. Small connecting nipples between sections made it necessary to tap each section for separate outside header to assure circulation between sections for use with indirect domestic water heater.
12. Two flow outlets making a header connection necessary.
13. No provisions in design for flexibility. Conversion from hand firing to automatic firing necessitated many extra parts and tappings for automatic controls. Base and heating surface not designed for efficient operation with automatic firing.
14. List price $346.00

(Continued on Page 56)

Present Model

1. Boiler rating: 1,010 sq. ft.
2. Steel jacket finished in two-tone baked enamel.
3. Air cell asbestos insulation between jacket and boiler.
4. Larger, easier-to-read gauge and water trimmings are recessed to prevent breakage.
5. As easy to keep clean as a piece of furniture.
6. Door handle of special design stays cool even with hot fire.
7. Larger doors to aid in firing and reduce shovel spilling. A great aid in removing ashes.
8. Draft at rear for better appearance.
9. Ground surfaces permitting sections to fit from iron to iron—prevent leakage of air into boiler.
10. Provision made for installation of built-in domestic water heater.
11. Large connecting nipples between sections assure positive internal circulation of water. Tappings are provided for the use of indirect domestic water heater.
12. Only one flow outlet needed.
13. Provisions made in boiler design permit economical change to oil or stoker firing. The heating surface and tappings for all controls required for automatic heating assures efficient operation and easy installation with any type of automatic firing.
14. List price $157.00

(Continued on Page 56)

Heating—*Systems Applications* . . .

Two systems of heating were figured for model house. Article tells results

IN a recent effort to provide the home owner with data concerning heating methods, a nationally known heating engineer, S. R. Lewis, laid out plans and drew up specifications for a one pipe vacuum steam system and a forced circulation warm air system of heating, either to be installed in the same model home. These two systems were designed with the understanding that each should heat the house equally well. However, the designer did not know for what purpose the plans were to be used. These plans and specifications were then submitted to well-known, reputable heating contractor-dealers in widely separated sections of the country for installation estimates with the idea of publishing the results.

The bids published in this article are those of a middle western contractor-dealer. While the bids from other contractor-dealers in other sections of the country would naturally vary due to differing local conditions, the same relative difference in costs held true.

Commenting on this survey, H. Merwin Porter, president of the Heating, Piping and Air Conditioning Contractors National Assn. had this to say, "After examining the . . . survey of heating methods I can say that it was done in all fairness and in accordance with the best trade practice."

RADIATOR HEATING

The following is the specification, in part, to be used if the model home were to be equipped with a one pipe vacuum steam system:

Boiler: to be designed especially for oil burning and to be completely enclosed with insulated steel jacket.

Oil Burner: to be adapted to use No. 3 oil, installed in boiler with all electric and pipe connections made.

Air Conditioner: to be a recirculating type unit, complete with blower, humidifier, humidistat, solenoid valve, filter and tempering coil.

Radiation: shall consist of 347 sq. ft. of concealed type convector radiation and 100 sq. ft. of wall type radiation.

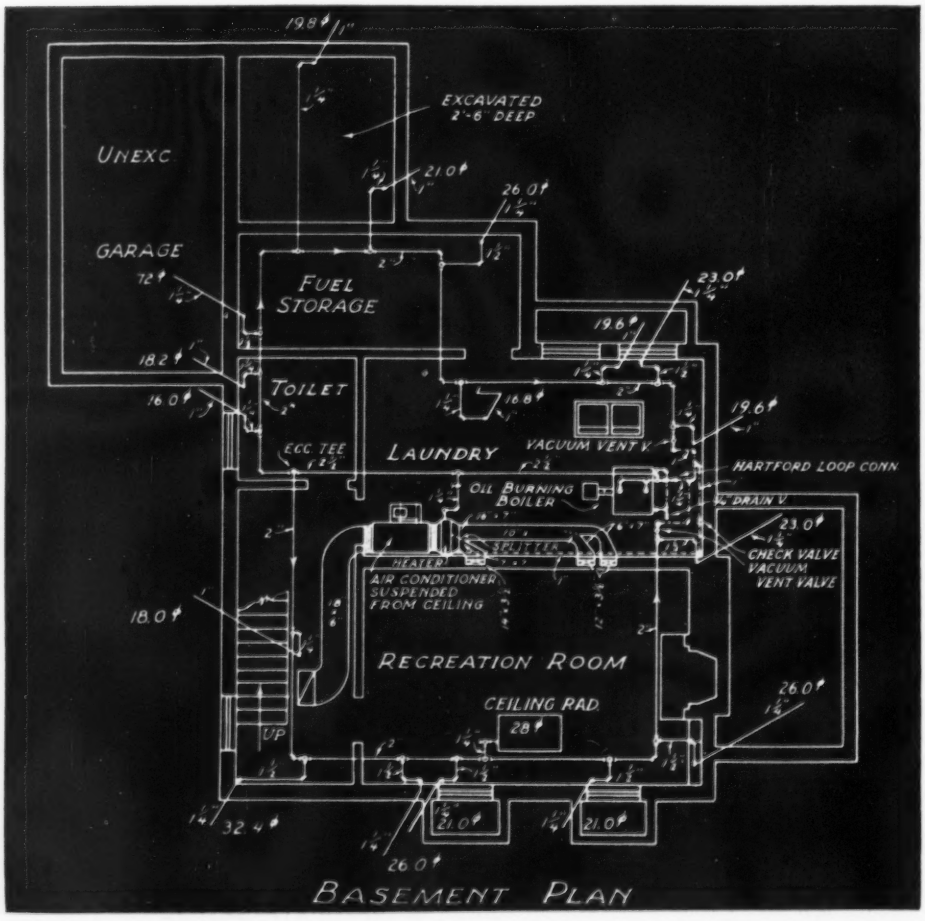
Duct Work: to be No. 26 gauge metal with interlocking joints and air conditioning type grilles where indicated.

Piping: shall be standard piping sized as indicated on plan.

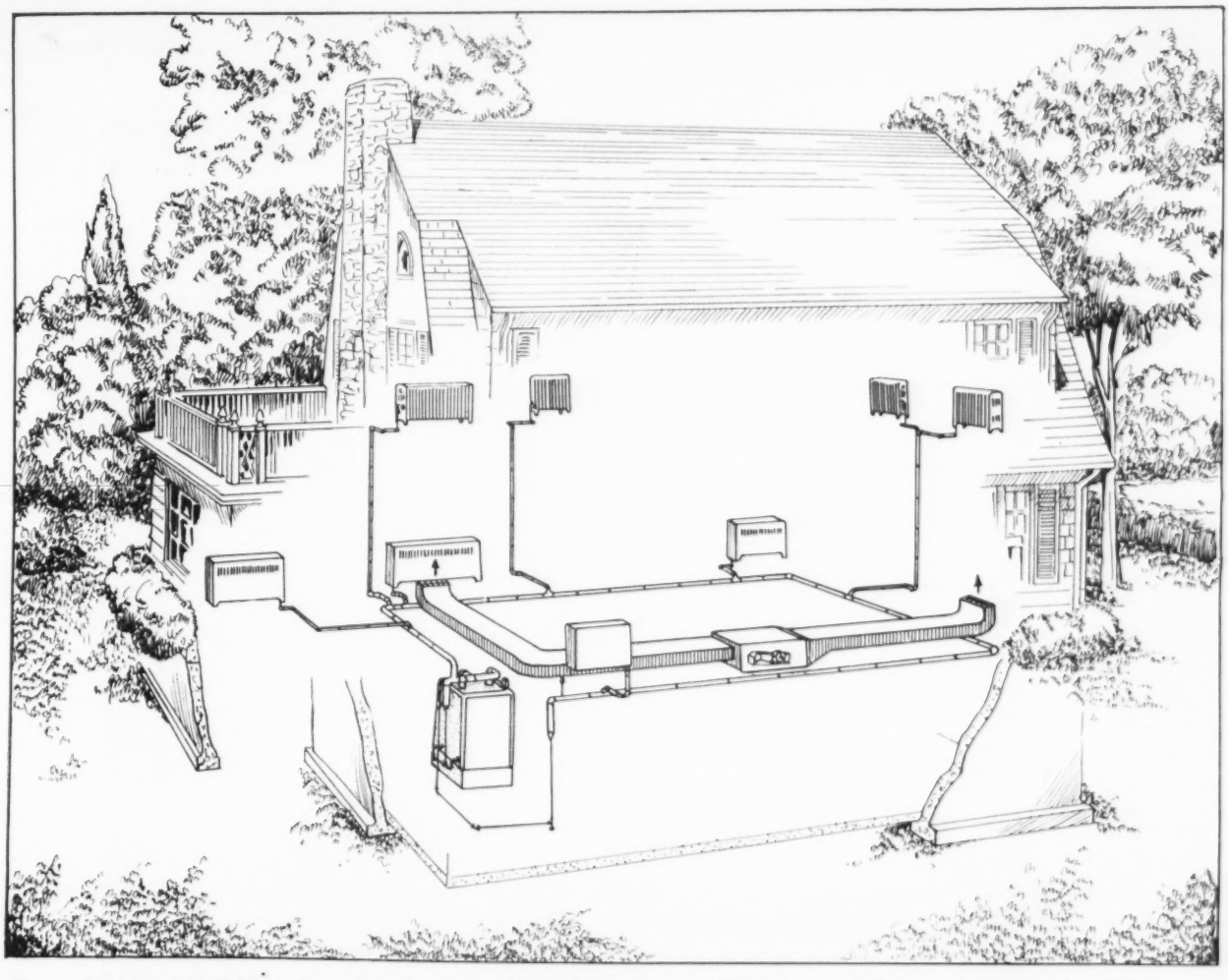
Vacuum Valves: on mains and radiators, of the proper type.

Radiator Valves: of the proper type for the system.

Oil Storage Tank: to have a capacity of 275 gal., set in cradle and connected by tubing to the burner.



Shown at the left is the basement floor plan which ties in with the specification for a one pipe system



Shown above is a typical layout for a one pipe vacuum steam heating system. Phantom view indicates arrangement of radiation

Total initial cost.....$1,765.00

The usual estimated life span of a boiler is taken as 25 years. However, in this survey, for the purpose of anticipating maintenance cost, recapitulation for a 12 year period indicated that minor repairs should not exceed $50.00, which would bring the installation and maintenance cost to.....$1,815.00

Total Cost, Radiator Heating.....$1,815.00

The following specification, in part, was written for the model home if a forced circulation warm air system of heating were used:

Furnace and Conditioner: to be an oil designed heating and air conditioning unit complete with blower, fan, humidifier, solenoid valves, strainer, filters and automatic controls. Capacity not less than 106,800 Btu. per hr.

Burner: to be adapted to use No. 3 oil, equipped with safety controls, installed in air conditioning unit with all the electric wiring and the oil pipe connections being completed.

Duct Work: to be No. 26 gauge metal with quadrant dampers and louvres and independently operated dampers in the registers.

Insulation: duct work in unexcavated areas to be insulated with 3 ply air cell covering.

Oil Storage Tank: to be a 275 gal. oil tank connected complete with drain, fill and vent piping and oil indicator.

Garage Heater: to be a gas burning unit, operated manually, capacity of the unit to be 20,000 Btu.

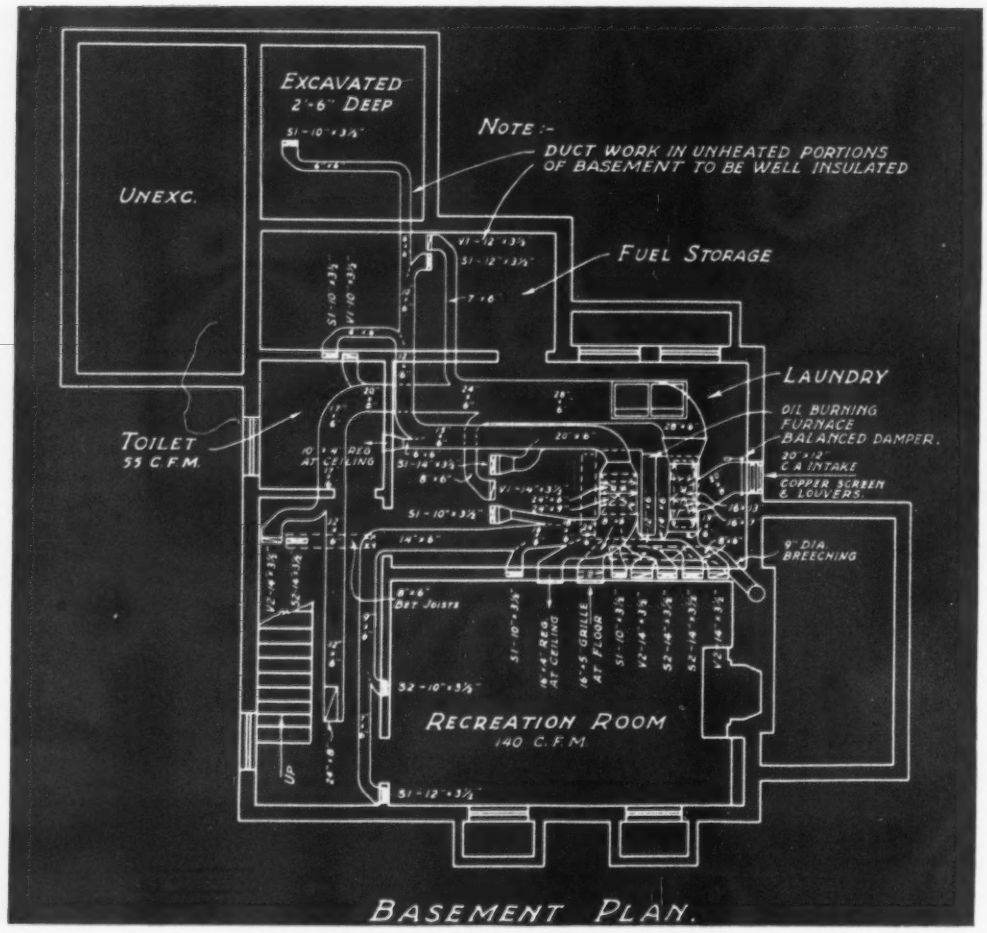
Total initial cost.....$1,534.00.

The estimated life span of the unit in this system was taken as being from 8 to 12 years, with the general concensus being that about a 50 per cent replacement is required.

However, in this survey a 33 per cent replacement was figured, which would, for a 12 year period, mean an expenditure of $500.00 or a total installation and maintenance cost of.....$2,034.00.

Total Cost, Warm Air.....$2,034.00

In this survey the cost figures shown here for both types of heating systems are based on the most complete kind of installation. Heating systems which are not as complete as the ones herein described will naturally cost considerably less, but for this survey, certain building plans were selected and the engineer designing the heat-



The floor plan is for the same house as shown on Page 54. This is a forced circulation warm air system

ing systems was to lay out two heating systems that would work equally well, which would mean that the most complete equipment be selected. The foregoing survey was conducted by Hoffman Specialty Co. with the cooperation of the National Assn. of Real Estate Boards. The plans were supplied by *McCall's* magazine.

Radiators

(Continued from Page 53)

Old Model

1. Took up considerable space.
2. Rather slow in heating up.
3. Somewhat difficult to handle.
4. Comparatively low test pressure.
5. Not very decorative.
6. **Average cost per sq. ft. 39½c**

(Continued on Page 150)

Present Model

1. Occupies 40 per cent less space.
2. Heats up 40 per cent faster.
3. Considerably easier to handle.
4. Much greater test pressure.
5. Better appearance.
6. **Average cost per sq. ft. 31½c**

(Continued on Page 151)

Pulling Together . . .

Cooperative campaign indicates path to successful sales

ON this page are shown three more of the series of advertisements produced by Plumbing and Heating Industries Bureau and being run cooperatively by the 30 members of the North Shore Plumbing Contractors Assn. in the Evanston (Ill.) *News-Index*. The actual size of the advertisements is 4 by 8 in.

Reproduced last month were the first five of the series, some of which stressed the bargains offered by plumbing

(Continued on Page 146)

DRIP!
DRIP!
DRIP!
Little drops of water are costing you money.
Wasted cold water is bad enough — wasted hot water is much more costly.
Literally pennies dripping from your faucet.
The tiny trickle of water wears the washer and seat. Timely repairs may save the faucet.
Have your leaking faucets fixed now — today — or better still, have them replaced with leak-proof, trouble-free faucets.
Good workmanship is important on every plumbing repair job—even on faucet repairs. Good workmanship is your insurance against leak troubles — money wasted.
The members of the North Shore Plumbing Contractors Association give courteous attention to every job — from the repair of faucets to the installation of a complete bathroom.
No job is too small — no installation too complicated — for their expert workmen.
NORTH SHORE
Prove for Yourself
How Little It Costs to Enjoy the Ease and Convenience of
Automatic Gas Water Heating
THREE MONTHS TRIAL OFFER
$1.50 DOWN, UP TO 48 MONTHS TO PAY BALANCE ON YOUR PUBLIC SERVICE BILL
LIBERAL TRADE-IN ALLOWANCE
LIBERAL ALLOWANCE FOR INSTALLATION
REMEMBER AUTOMATIC GAS WATER HEATING SERVICE NOW COSTS LESS THAN EVER BEFORE. INVESTIGATE NOW.
Call a member of the North Shore Plumbing Contractors Association today and get an estimate on your water heating requirements.
NORTH SHORE
PLUMBING CONTRACTORS ASSOCIATION
NEW STREAMLINE
SHELFBACK LAVATORY
IDEAL FOR FIRST FLOOR BATHROOM
This modern space-saving lavatory, with its practical shelfback, is an inspiration for the first floor washroom.
Whether you are building a new home or modernizing the one you live in, the first floor washroom is a necessity in the modern house.
Just two fixtures are necessary — the lavatory and the closet. Today they are specially designed for use in small odds and ends of space.
And, the new streamline lavatories come in a variety of dashing colors.
For advice on where to put your first floor washroom, and what fixtures to use
CALL A MEMBER OF THE
NORTH SHORE
PLUMBING CONTRACTORS ASSOCIATION

Different—*A New Sales Medium*

Radio is no medium for the "in-and-outer," but as a consistently used advertising medium it is very profitable

DOES radio advertising pay? This Oakland master plumber says it does. "It pays," says Mr. Picard, "to the extent of my taking in three dollars for every dollar spent on my radio work. But it calls for a steady, constant effort. And I might add that radio is no medium for the so-called in-and-outer."

The program started April 1, going on the air three times weekly as "Portraits in Music," from Station KRE in Berkeley, adjoining Oakland. Commencing July 15, the program was spread to include fifteen-minute periods every night at 8 o'clock, from Monday through Friday. Aside from two minutes given to Mr. Picard's "commercial," these periods were devoted to rendering the finest, most enduring pieces of music. Thus there was built up a substantial number of auditors, listeners some of whom have come to the sponsor and frankly said they "wouldn't know how to get along without his program."

During July and early August, the program also included an announcement that Mr. Picard would soon be on the air at regular intervals, and would speak to them in person on matters of vital import concerning home, health and happiness. August 15, Mr. Picard made his first address, lasting five minutes only. Each Wednesday thereafter his program has been featured by one of his talks.

Herein are reproduced two "Portraits in Music" programs—the first one, marking the initial talk by Mr. Picard in person, being an exact copy of the studio program; the second contains the talk alone.

It will be observed that these talks are quite impersonal: the sponsor gives his attention not only to the subject in hand, but submerges his own interests in that of the matter he is discussing. This adds weight and conviction to his remarks, and because of their impersonal quality, he puts his subject over with far greater effectiveness than he would by the cram-it-down methods sometimes used. At least, that's the way his auditors react to it.

Of radio as a channel for approaching the public, Mr. Picard has this to say:

"By approaching the public through this medium, one brings his message into homes where it will not otherwise gain entrance. It gives one the opportunity to inform the public of the great importance of sanitation, as well as the necessity for the services of the qualified, registered master plumber.

"The wholehearted response to the program has been both surprising and gratifying; indeed, many have come to me to express their appreciation for these talks dealing with the vital importance of plumbing and the part it plays in the protection of the health of the home.

"In short, I'm convinced that radio is the ideal medium for bringing the subject of plumbing before the public in its true light.

"I would heartily encourage anyone taking a pride in this profession to give every thought and consideration to radio advertising. If they are willing to sacrifice time and are unbiased in their remarks, and if they will confine themselves to the good of the profession as a whole, they will be well rewarded. I have no regrets at having undertaken this work."

Following is the first program featured by the voice of the sponsor:

Announcer: "From the memory album of transcribed music, we present 'Portraits in Music,' a program brought you under the sponsorship of W. H. Picard, Inc., The Home of Modernization, 4166 Broadway, in Oakland."

Theme: "Yesterthoughts." (Up full and fade out).

Announcer: "First, tonight, we take music from the legends of 'A Thousand and One Nights,' and listen to its interpretation by Margit Hegedus and the String Ensemble."

Music: "Thousand and One Nights."

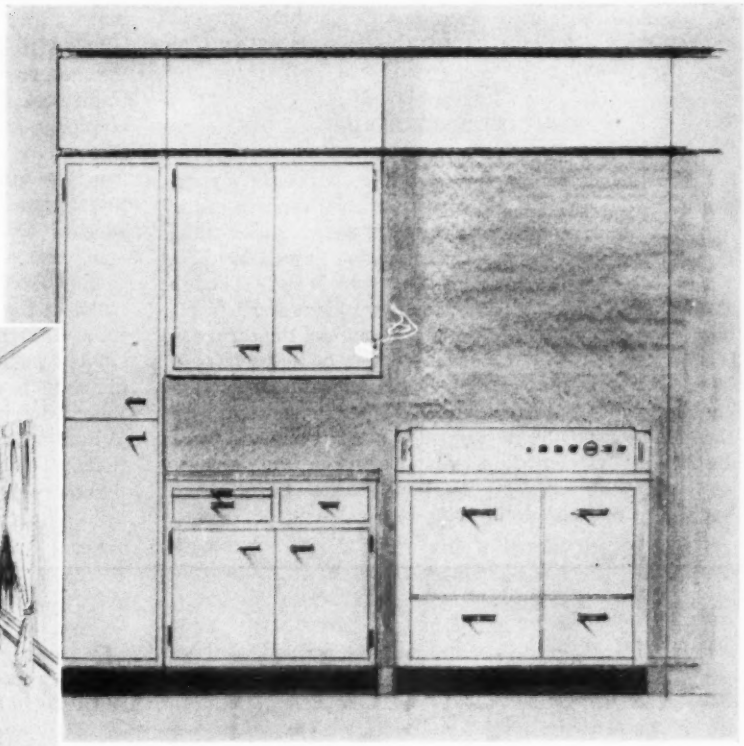
Announcer: "Now it is with pleasure that I present our sponsor, Mr. W. H. Picard, who brings you the first of his Wednesday evening talks on the importance of modern plumbing. Good evening, Mr. Picard."

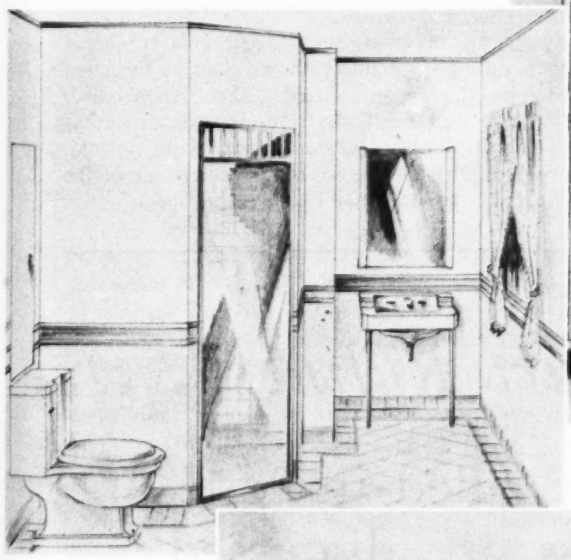
Mr. Picard: "Has it ever occurred to you why the man held responsible for the maintenance of sanitation in your home is called a plumber? And who *is* the plumber?

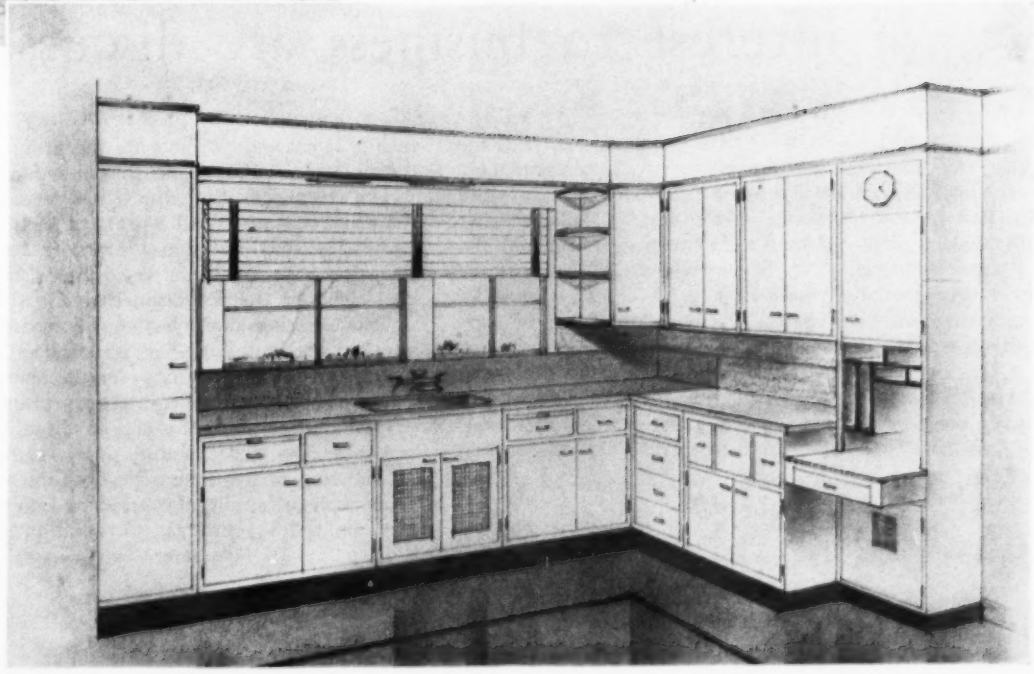
"It is he whose training and heritage from the dawn of civilization has made it possible for people to form huge centers of population. More than anyone else, it is he who has given us the privilege of indulging in our creature comforts—as witness the early Roman baths, reflected after twenty or more centuries in today's most modern sanitary fixtures.

Is Found in Radio Advertising . . .

"It is timely to note that the word 'plumbing' had its roots in that very day and age. *Plumbum* being the Latin for lead, what is more natural than to apply the term 'plumber' to the man who for two thousand years has been a worker in that soft, age-defying metal? Today he works not only in lead, but in iron and steel, brass and







The three sketches shown on this page are of a type used to follow up inquiries which result from radio advertising. When a prospect is found, preliminary discussion determines what the customer wishes to buy and color drawings visualize what the room will look like when it is finished

bronze and chromium, enamelware and vitreous ware; he must be a sanitary, mechanical expert in building construction; be familiar with local sanitary plumbing ordinances governing his work; and finally, his choice of workmen should be such as to inspire naught but the utmost confidence of the home owner.

"The plumber, then, is distinctly a man of parts: he stands for a vitally essential, highly specialized profession. And right here, let me draw a sharp line of distinction between the responsible, registered master plumber, and the one whose chief claim to craftsmanship lies in repairing leaky faucets and patching up old kitchen ranges—in other words, his work is purely that of a 'handyman.'

SANITARY ENGINEERING

"Plumbing is known, and rightly so, as sanitary engineering: after all, that represents the chief concern of the master plumber. But down through the centuries these craftsmen have clung to the designation earned by them when such cities as Pompeii came into being. Though Pompeii was buried beneath a blanket of lava in 79 A. D., modern excavators have laid bare enough of the early day water works system to reconstruct it on paper. They have also uncovered enough of the ancient city to conclude that among the various crafts, the plumber was even then a ranking figure in civic development. . . . And why? Because it was to him, whose skill in the forming and laying of miles of pipe lines, they owed the privilege of enjoying their favorite pastime—that of bathing.

"The well-to-do, of course, had their private baths—roomy, luxurious combinations of pool and drying room. Those less fortunate made use of the many public baths provided for them. These were extensive affairs, occupying areas of over half a block, with dressing rooms, cold rooms, warm and hot rooms. Water from nearby wells was stored and drawn off as required, through pipe lines designed and installed by the plumber.

"While the cities of yesterday—even then alert to the need of sanitation—depended largely on the plumber for their existence, the cities of today could not live without him.

"Strip the tile facing and the concrete walls from the modern skyscraper, and what is left besides the steel framework and electric conduits? There stands a maze of piping, 90 per cent of it representing the workmanship of the plumber. This mass of piping consists of fire lines and supply lines for hundreds of sanitary fixtures: there are lines for drinking fountains, dental and surgical offices and the all-important waste lines and vents that protect the seal of the traps. Cut off at the ground level these arteries through which throbs the life blood of the building, and within 12 hours it would become an architectural corpse.

"The fact that sanitation comes first in today's scheme of living is no more strikingly shown than in the huge job of digging the Panama Canal. The French failed. Why? Because they overlooked the elements of sanitation. Their workmen died in droves, with typhoid, dysentery and allied diseases of the tropics. One of the

(Continued on Page 148)

Interesting—*Court Rulings* . . .

How the courts have ruled in cases of interest to business are discussed

A NEW YORK merchant was sued for the price which he had agreed to pay for certain merchandise. He admitted buying the goods and agreeing to pay the price claimed in the suit, but alleged that the sale was illegal to the extent that it violated the Robinson-Patman Act. The merchant claimed that the manufacturer from whom he bought the goods had discriminated in price against him by selling identical merchandise to the merchant's competitor at lower prices.

Thus for the first time there was raised before a court this question: Where a manufacturer or other distributor sells merchandise at a price violating the Robinson-Patman Act, may the merchant discriminated against in such a sale avoid payment on the ground that the contract of sale is illegal and thus unenforceable?

The New York Supreme Court decided that the merchant could not avoid the payment of the contract price on this ground, but that his proper remedy would be to proceed for an injunction or for damages under the provisions of the Robinson-Patman Act.

This decision is probably a precedent in any state which, like New York, has no state anti-price discrimination act. However, many of the state anti-price discrimination acts provide that any contract entered into in violation of the act shall be illegal and void. The Arkansas law, for example, provides that any contract in violation of the anti price discrimination act of that State shall be "an illegal contract and no recovery thereon shall be had." (Progress Corporation vs. Green, New

(Continued on Page 140)

Note: This article is presented for the purpose of showing the application of legislation to general problems. It should be emphasized that this material does not attempt to answer specific questions which have not been decided or which are to be decided. It is not an effort to determine how the courts might rule.

Pressure . . . .

Certain basic fundamentals govern the action of water pressure in tanks. In answer to a reader's queries these laws are discussed

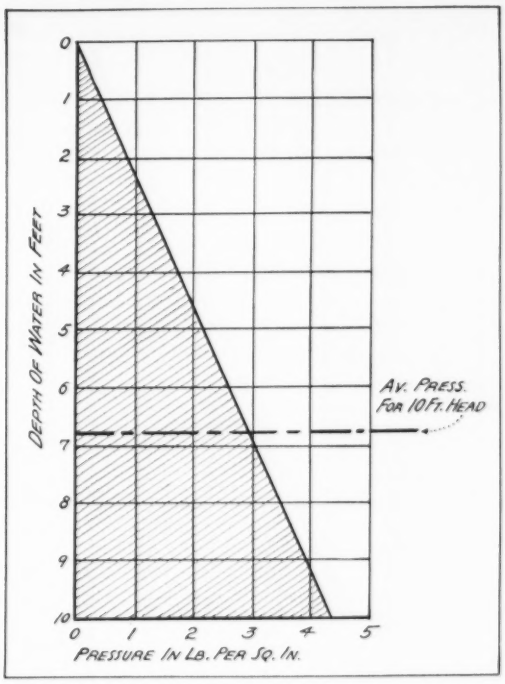


Fig. 1—This diagram indicates the average pressure for the conditions which are shown

TO THE EDITOR:

Recently we have had occasion to use information relative to water pressures and, although we searched through numerous sources, we were unable to find information of the kind needed. Knowing the work you are doing along such lines we have made a few sketches and prepared some questions in connection with same; we should like to have you tell us how to solve these and to give the formulas used so that we can apply these to other similar problems.

Sketch	Question
Fig. 8.	1. Pressure per sq. in. on a square rectangular and circular tank.
Fig. 8.	2. Total pressure on the bottom of a square, or rectangular tank.
Fig. 7.	3. Lateral pressure on a horizontal round tank.
Fig. 5.	4. Lateral pressure on a vertical round tank.
	5. Total pressure on No. 3 and No. 4 questions.
Fig. 6.	6. Pressures on oblique surfaces in tanks and lateral pressures on similar surfaces.
Fig. 6.	7. Total pressure if pipe is taken off of the top of the tank in No. 3 question.
Fig. 5.	8. Total pressure if pipe is taken off of the top of tank in No. 4 question.
Fig. 6.	9. Total pressure if pressure only is added to tanks in No. 3 and No. 4 questions.
Fig. 5.	10. Total pressure if pressure is added to pipe off the top of the tanks in questions No. 3 and No. 4.

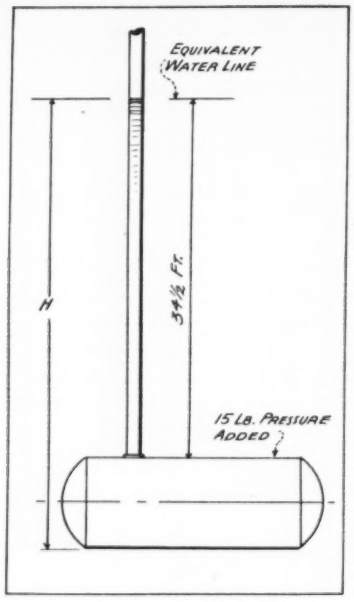
TO THE READER:

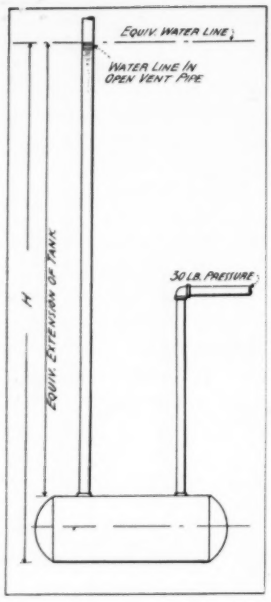
The questions asked are those which would arise in the design and installation of tanks containing water both under atmospheric pressure and under added pressures. It will make the matter clearer, perhaps, if first the tanks are divided into those having atmospheric pressure on the water contained and those which have atmospheric pressure plus some other pressure such as a pipe connected to a closed tank with 30 lb. pressure in the pipe. A distinction is also made between the "pressure per square inch" and the "total pressure" and we understand that by "total pressure" is meant the pressure exerted over an entire area of a surface such as the bottom or side of a tank. Now it is a principle in hydraulics that, whatever the pressure may be, it will be exerted equally in all directions which means that the pressure will be exerted perpendicularly to the surface with which the water is in contact regardless of the position that this surface may take. This is an important factor as will be seen later. It is also true that the pressure at any depth below the water line in an atmospheric tank will be 0.434 lb. per sq. in. for each ft. of depth due to the fact that a cu. ft. of water generally is assumed to weigh about 62½ lb. and this 62½ lb. distributed over a sq. ft. of area on the bottom of a cu. ft. results in 0.434 lb. per sq. in. on this area. The weight of water varies slightly with the temperature but the foregoing is the commonly accepted pressure at usual temperatures.

As a result of this, the pressure at any point below the water line may be computed from the formula

$H \times 0.434$ lb. equals the pressure in sq. in.

when "H" is the distance below the water line at which the pressure is to be determined. In Fig. 1 a pressure diagram is shown made up to a maximum of 10 ft. and it will be seen that the pressure increases in direct proportion to the depth thus making a straight line curve. It will be noted also on this pressure diagram that the





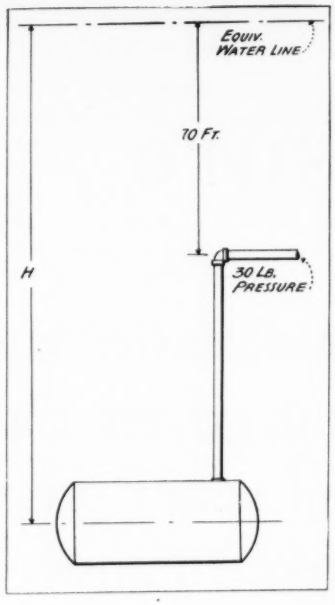


Fig. 2—At the extreme left is shown a condition where 15 lb. has been added to the table

Fig. 3—Center, this illustrates the vent line where a 30 lb. pressure exists on the tank

Fig. 4—At the immediate left is shown another condition where 30 lb. pressure exists

average pressure for the whole depth is not half way between the bottom and the top of the pressure diagram but occurs ⅓ of the distance above the bottom of the diagram.

This means that if this diagram were cut out of a piece of wood or metal and balanced on a knife edge as shown in Fig. 9 the knife edge would have to be placed ⅓ of the length of the diagram from the large end so that there would be a sufficient amount of the diagram at the small end to balance the larger portion at the other. Now if the pressure of the water is computed for a point ⅓ above the bottom of the tank it is evident that this represents the average pressure for the side of the tank and the area of the side multiplied by the average pressure will give the total outward push or pressure on the side.

This may be expressed by the formula

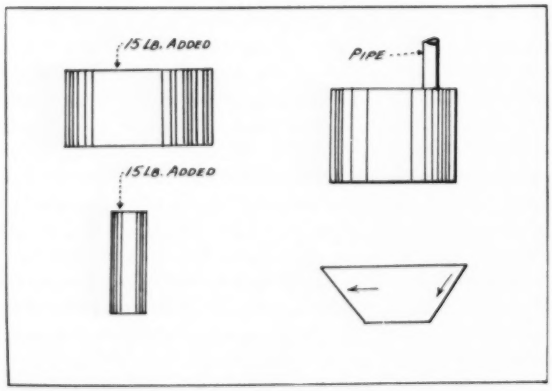


Fig. 6—Here are four more diagrams which tie in with the questions asked by a reader. See questions at beginning of article

0.434 lb. × ⅔ H × 144 × A equals the total pressure against the side

when

0.434 lb. is the pressure per ft. of head

⅔ H represents ⅔ of the total depth of the water in ft.

144 the number of sq. in. in a sq. ft.

A the area of the side in sq. ft.

and it will be seen that the first two quantities are simply the pressure per sq. in. at ⅓ the distance above the bottom of the pressure diagram and the last two quantities are the area of the tank side in sq. in. The pressure on the bottom of the tank will be according to the following formula:

H × 0.434 lb. equals pressure per sq. in.

when

H is the depth of the water in ft.

and the total pressure on the bottom of the tank will be

H × 0.434 lb. × 144 × A

if

A represents the area of the bottom of the tank in sq. ft.

The point at which the average pressure is exerted on the side is often termed the "center of gravity" of the pressure diagram due to the fact that the diagram will balance if supported at that point as previously has been shown. We now will try to answer our reader's questions categorically.

TYPES OF TANKS

We presume in the first question that, when our reader says, "square, rectangular and circular tank," the last is a circular tank with a flat bottom; if H is taken as the depth of the water in feet the pressure on the bottom of each of the tanks mentioned will be in lb. per sq. in.,

0.434 lb. × H

but care should be taken not to consider H as the height of the tank when it really is the depth of the water in the tank.

In the second question, the total pressure on the bottom of such style tanks will be

0.434 lb. × H × 144 × A

when

A is the area of the bottom in sq. ft.

Lateral pressure on the side of a horizontal round tank, as asked in the third question, will be the same as the

lateral pressure per square inch on a rectangular or flat sided tank and may be found in a similar manner with the same formula as for Question No. 1 it being realized, of course, that this pressure varies from zero at the water line up to a maximum at the bottom of the tank as shown in the diagram previously given in Fig. 1. The formula will give the pressure per sq. in. at any point below the water line by substituting this distance below the water line in feet for the H in the formula. H will reach a maximum, of course, at the bottom of the side.

The lateral pressure on a "vertical" round tank may be computed by the same formula as for the horizontal round tank in the third question. The only difference is that in a vertical tank the height is considerably greater than the diameter while in the horizontal round tank it usually is considerably less or, usually, not any more than the diameter.

There really is no such thing as a total pressure against the side of a cylindrical tank of either the type mentioned in Question No. 3 or in Question No. 4 as there is no limitation of the side, it following a continuous curve around to the point where it meets itself, forming a circular enclosure.

As far as the sides are concerned in such tanks they are subjected to tension but not to bending and a circular tank will keep its form until the pressure becomes sufficient to rupture the sides. The tension in a vertical inch of the side may be computed from the formula

$$H \times 0.434 \text{ lb.} \times R$$

when

H is the distance below the water line at which it is desired to know the tension.

and

R is the radius of the tank in inches.

Thus a tank 6 ft. in diameter at a point 10 ft. below the water line would have a stress in each vertical inch of its side of

$$0.434 \text{ lb.} \times 10 \text{ ft.} \times 72 \text{ in./2}$$

or

$$4.34 \text{ lb.} \times 36 \text{ in. which is } 156.24 \text{ lb.,}$$

and if the metal were ¼ in. thick the stress in the metal would be

$$156 \text{ lb.} / \tfrac{1}{4} \text{ in. or } 624 \text{ lb. per sq. in.}$$

In answering the sixth question, it must be remembered that since water pressure is exerted equally in all directions, the pressure against oblique surfaces will be the same as against vertical or horizontal surfaces for an equal head or H and this pressure will be exerted perpendicular to the oblique surface.

PIPE FROM TOP OF TANK

If a pipe is taken off of the top of a tank, as is asked in the eighth and ninth questions, and is a vent pipe, it would exert no influence on the water pressure in the tank except to prevent any pressure outside of the usual atmospheric pressure to be exerted on the water. If such a pipe were filled with water there would be an added pressure on the tank which can be provided for by taking H as the distance below the water line *in the pipe* instead of the water line *in the tank;* in other words the *water line in the pipe becomes the water line for the tank* and all pressures in the tank will be in accordance with this increased height of the water line.

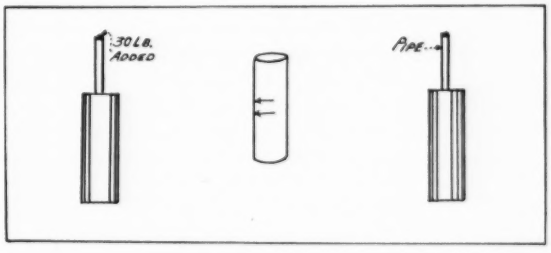


Fig. 5—Shown above are three diagrams illustrating three of the questions concerning pressure and its action in tanks

In Question No. 9, adding pressure to the tank by any means would add to the water pressures in the tank an additional head equal to 0.434 lb. divided into the added pressure and H would be increased by this added number of feet of head. Thus if 15 lb. were added to a tank pressure, it is equivalent to raising the water line in the tank for a distance of

15 lb. / 0.434 lb. or 34½ ft. approx. (See Fig. 2)

and in this case H would be the distance from the equivalent water line down to the point at which the pressure in lb. per sq. in. was desired to be known. At the top

(Continued on Page 150)

Fig. 7—Immediate right, illustrates the tank for question on lateral pressures

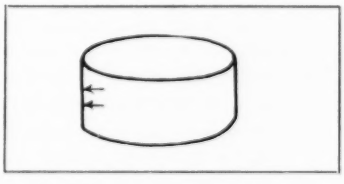


Fig. 8—Lower right, the drawing which is part of the first question on Page 61

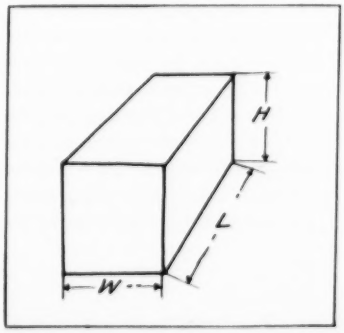
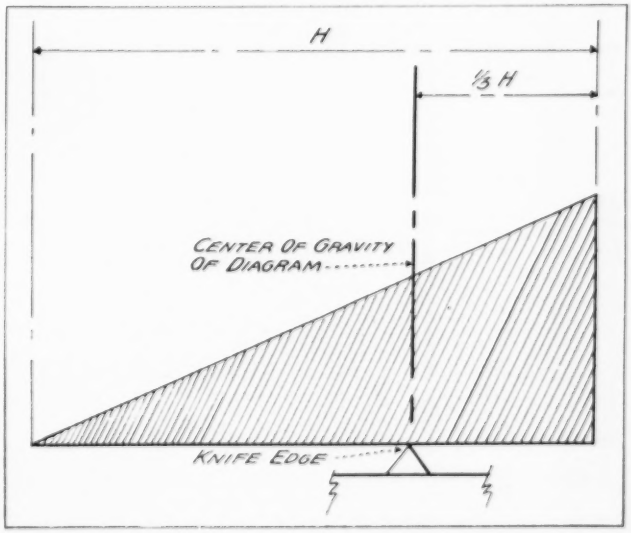


Fig. 9—Extreme right, center of gravity and balance is illustrated by geometrical figure



Research —

CONDENSATION or moisture accumulation within walls and in attics or roof spaces has become a subject of considerable concern. This problem is not new; it has been known for many years that condensation occurs under certain conditions in houses and barns, particularly in localities subject to severe winter weather, but only recently has it become a general problem, particularly in the better class of construction. Such instances of damage have been occurring frequently in the last few years, particularly after the cold winter of 1935-36. In some instances the damage is visible whereas in others it is concealed in the walls and unknown. Even new houses under construction in cold weather often show evidence of moisture, especially if plastered during the late fall or winter months.

Obviously the question arises as to why more is heard about this condition now than just a few years ago. The answer is relatively simple. During the last few years there has been a marked tendency on the part of the architects, builders, and home owners to improve new and old homes with the idea of increasing the comfort of the occupants and decreasing operating expenses. Prominent among these improvements are the increasing use of storm sash, insulation, weather strips, calking around windows and doors, and other means of decreasing heat loss and wind infiltration. Because of the tighter construction the normal humidity or vapor pressure within a house so constructed is higher than in houses less tightly constructed. In addition, as a health and comfort measure the normal humidity is usually augmented by evaporating water or some other means of winter air conditioning. Improvements that add to comfort and health are to be encouraged but they introduce the moisture problem just described.

By L. V. Teesdale, Senior Engineer, Forest Products Laboratory, Forest Service, U. S. Dept. of Agriculture Laboratory maintained at Madison, Wis., in cooperation with the University of Wisconsin.

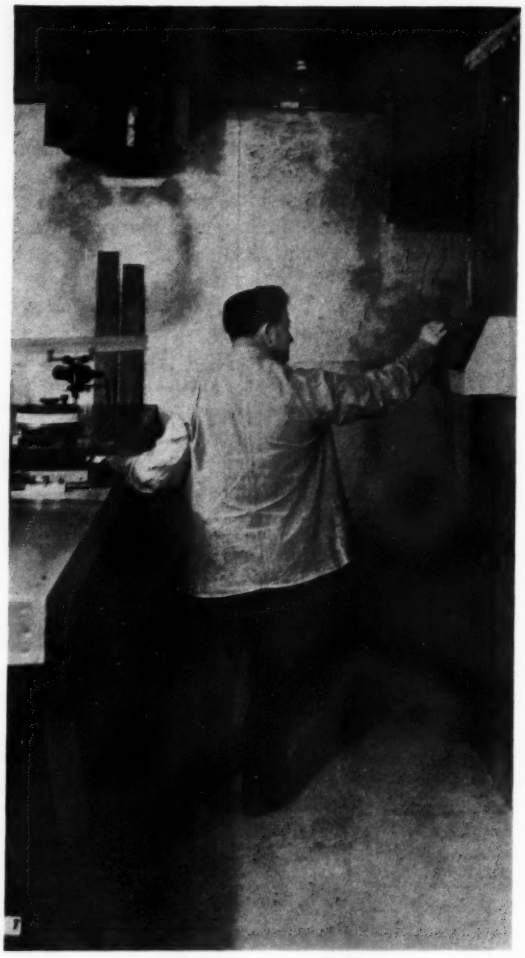


Fig. 1—The above illustration shows some of the equipment used for testing purposes in the Forest Products Laboratory

Fig. 2—Sleet storm coats outer walls of test house. Note there is less ice over the studs, indicating efficiency of insulation

A certain amount of water vapor is always present in the atmosphere. The maximum amount of water vapor that can be present depends upon the temperature of the air, being greater at higher temperatures. Air that is completely saturated with water vapor is said to be at its dewpoint temperature and its relative humidity is 100 per cent. Air not completely saturated with water vapor is above its dewpoint temperature and its relative humidity is less than 100 per cent. Adding water vapor to unsaturated air without changing the temperature of the air will increase the relative humidity and raise the dewpoint temperature. Removing water vapor will have the opposite effects. Raising the temperature of air without changing the amount of water vapor in it will decrease its relative humidity. Lowering the temperature will increase the relative humidity till the dewpoint temperature is reached. Further lowering will cause progressive condensation of water vapor from the air.

The use of relative humidity as a measure of the amount of water vapor present in a given atmosphere is not satisfactory because this relationship varies with the temperature. Hence it is more practical to use the vapor pressure of the water vapor for this purpose, since it is a

Shows How to Correct Condensation . . .

Accumulation of moisture in walls and attics is a major building problem today. Discussed here are methods of prevention

direct measure of the proportion of vapor present in the air. This property is usually expressed in terms of inches of mercury.

At 0 deg. Fahr. air will hold very little water vapor. If saturated air from out of doors at 0 deg. Fahr. temperature is introduced without adding moisture into a house heated at 70 deg. Fahr. the relative humidity will be about 5 per cent. However, there are sources of moisture within an occupied house, such as cooking, evaporation from plants, laundry work, respiration, and bathing, so that the normal relative humidity 0 deg. Fahr. within a home may be about 10 to 15 per cent when the outdoor temperature is 0 deg. Fahr. Evaporation from water pans on radiators may increase the humidity to about 20 per cent or more. This means, of course, that the vapor pressure inside of the home will be higher than that outside. Because of the higher water vapor pressure within doors there will be a constant exfiltration of water vapor, the amount depending upon the tightness of windows and doors, the permeability of the wall materials, and upon other factors. If doors and windows are loose, water vapor will pass out readily and if tight the leakage will be minimized.

Winter air conditioning means, among other things, maintaining a humidity in the home at some established value intended to be better suited to health, comfort, and protection of woodwork than the normal humidity just described. With winter air conditioning the relative humidity may often be 40 per cent or higher. The humidity may be controlled automatically, but without such control the humidity may fluctuate considerably.

The effect of the humidity or vapor pressure on condensation can be understood by examining Figs. 4 and 5. Fig. 4 illustrates a typical frame wall of lath and plaster, studs, sheathing, sheathing paper, and wood siding. Fig. 5 illustrates a wall similar in all respects except that the stud space is filled with insulation. For purposes of illustration the following examples have been chosen: One indoor temperature of 70 deg. Fahr.; three outdoor temperatures of 20 deg. Fahr, 0 deg. Fahr., and minus 20 deg. Fahr.; and three indoor relative humidities of 40 per cent, 30 per cent, and 20 per cent. When the temperature of the room side of the sheathing is above the dewpoint temperature in the room no condensation can take place within the stud space. When, however, the sheathing temperature falls below the room dewpoint a different set of conditions prevail. If, in Fig. 4, the lath and plaster offered no resistance to the passage of vapor, condensation could take place on the sheathing with the latter exactly at the room dewpoint. The amount of condensation would be limited only by the ability of the sheathing to function as a condenser and the permeability of the sheathing to water vapor. Since the lath and plaster do offer some resistance to the passage of vapor, the vapor pressure within the stud space will be less than that within the room whenever there is vapor movement through the lath and plaster. Actually, therefore, condensation cannot take place within the stud space until the sheathing temperature is appreciably less than the room dewpoint.

When condensation is actually taking place on the sheathing, the vapor pressure within the stud space will be largely determined by the sheathing temperature and will, in general, correspond rather closely to saturation pressure at this temperature. The three jagged lines marked "temperature" show the temperature gradients from one side of the wall to the other for the three chosen conditions. The three dashed horizontal lines marked "dewpoint temperature" serve to locate the dewpoint temperatures for the foregoing three indoor relative humidities. The water vapor pressures

Fig. 3—A worker is removing a sample of sheathing from test house for checking moisture content and observing insulation

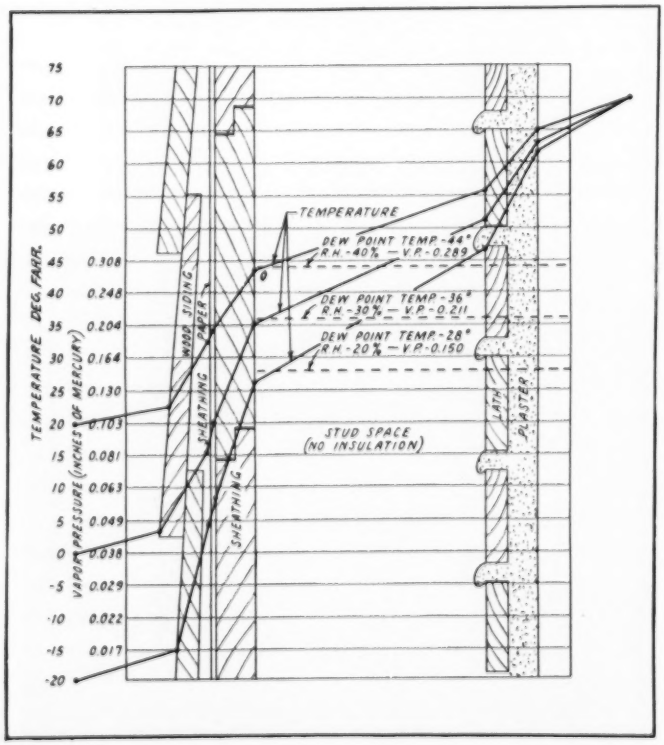
corresponding to these dewpoints are also marked on the respective lines.

Comparing Figs. 4 and 5, it is at once evident that, within the stud space, the temperature gradients are much steeper in Fig. 5 than in Fig. 4 and that the respective sheathing temperatures are much lower in Fig. 5 than in Fig. 4. This results from the addition of insulation in Fig. 5. Because of the lower sheathing temperatures, condensation will occur on the sheathing with lower room humidities when insulation is used than when it is not used. Conditions within the walls are actually more complicated than the drawings and examples indicate, because they are not static, and matters of heat balance and rates of water vapor movement and air movement have important effects upon what goes on.

Referring again to Fig. 4, when the relative humidity within the house is 40 per cent the vapor pressure is approximately 0.289 of an inch. The temperature gradient through the wall when the outside temperature is 20 deg. Fahr. below zero intersects the room side of the sheathing at about 26 deg. Fahr. above zero, and assuming saturated air at this point, the vapor pressure there will be only about 0.137 of an inch. This difference in vapor pressure will cause vapor to move from the room through the plaster to the stud space, and condensation will develop in this space. This condensation will eventually appear as frost or ice on the sheathing, which is below the freezing point. The still lower temperature and vapor pressure on the inner face of the sheathing paper will cause some of the remaining moisture vapor to move from the inside face of the sheathing to the colder face of the paper, but as the resistance to such movement is greater through the sheathing than through the open stud space the rate of vapor movement will be correspondingly small. However, with a rise in outside temperature the ice may melt and some water may be absorbed by the sheathing. Some may even run down inside the wall. The better grades of sheathing paper commonly used are very vapor resistant and very little vapor will pass through, but with changing outdoor temperatures when cold weather is followed by mild temperature the ice that forms between the sheathing and the paper may melt behind the paper, run down to a horizontal joint where some may work through and wet the siding. This is one source of moisture that may contribute to paint failure.

The same general principle of vapor movement exists where fill insulation is used. The insulation itself is not resistant to vapor movement, and the bulk of the condensation appears on the inside face of the sheathing. However, in the insulated wall the resistance to heat loss offered by the insulation results in a much lower temperature at the sheathing line.

Fig. 4—Here is a diagrammatic chart indicating temperature and vapor pressure where there is no insulation in stud space



TYPES OF INSULATION

There are a number of types and kinds of insulation on the market, and the potential buyer often hears that certain types "draw water" and become wet. This is not true. Such insulation, because of its efficiency in reducing heat loss, lowers the temperatures within the wall and thus sets up the condition that increases the amount of moisture that may accumulate. Once understanding the conditions that cause the moisture, it is also possible to provide means of prevention as discussed later.

The conditions that cause condensation in side walls also occur in attics or under roofs, modified more or less by any ventilation that may be provided or that may occur naturally. Roof condensation is reported far more frequently than side wall condensation, not necessarily because it occurs more frequently but rather because it is more likely to be seen by the occupants. For example, in a pitched roof house having, say, fill insulation in the ceiling below the attic, condensation may develop during a severe cold spell on the under side of the roof boards, forming as ice or frost. When the weather moderates, or even under a bright sun, the ice melts and drips on the attic floor, leaks through and spots the ceiling below. Often such spots are assumed to be roof leaks and cause owners and contractors considerable unnecessary expense in attempting to waterproof a roof that is not leaking. If the attic has adequate ventilation, little or no trouble will occur.

The movement of water vapor is independent of air movement to the degree that no general circulation of air is necessary to carry the vapor into the wall. The vapor actually moves by diffusion from zones of higher vapor pressure to zones of lower vapor pressure. In fact, plaster is very highly resistant to air infiltration even when under a pressure equivalent to a wind velocity of 15 m.p.h., but no such pressure exists within a house. Vapor, however, will move very readily through plain plaster but is retarded somewhat by paint coatings and other surface treatments.

Moisture accumulation within a wall like those illustrated in Figs. 4 and 5 is affected by five factors:

1. Outside temperature and humidity.
2. Efficiency of insulation.
3. Inside atmosphere (temperature and humidity).
4. Resistance of outer wall to vapor movement.

5. Resistance of inside wall to vapor movement.

As the outside temperature and humidity cannot be controlled, and as insulation adds to comfort, health, and fuel economy, methods of prevention are found in the three other factors. Various authorities believe that indoor humidities low enough to preclude the possibility of moisture accumulation are undesirable both as a factor of health and comfort and in preventing the overdrying of interior woodwork and furniture. It is possible to construct walls so that the vapor could pass outward through sheathing and sheathing paper and escape through openings in the outside wall covering or be carried away by ventilating the space between the sheathing and outside finish. Either the inclusion of ventilating holes in the side wall material or a ventilating space would require more or less modification of the conventional construction. One possible method for wood siding would be to place 1 by 2 in. furring strips over the sheathing, thus obtaining a vertical ventilating space approximately ¾ in. wide, which should be open to the outside at both the bottom and top of the wall so that air could enter at the bottom and pass out at the top. The openings could be concealed behind but not covered by mouldings or other treatment at the water table and cornice. Similar ventilation could be adapted to stucco, brick, and stone exteriors. With this method the sheathing paper should be of a type that passes water vapor readily.

Attics under pitched roofs can often be ventilated either through windows or louvered openings, ventilators in the roof, or openings in chimneys. Wood shingle roofs when laid on roof boards that are separated about 2 in. will often allow enough ventilation in the attic to eliminate the moisture problem. Flat roofs are more of a problem. Where the ceiling joists or supports and roof joists or supports are separated enough to allow a free circulation of air, and where sufficient openings and vents are installed, a fair degree of ventilation can be obtained. Often the space under flat roofs is not sufficient to obtain adequate circulation.

METHODS OF CONTROL

The most positive method of control so far developed at the Forest Products Labaratory is the use of vapor resistant barriers at or near the inner face of the wall and under ceiling joists under the attic. In houses under construction this barrier can be attached to the inner face of the studs after the walls have been insulated and before lathing or finishing the wall on the inside. In houses already plastered the barrier can be some suitable material or treatment applied to the interior surface of exterior walls. While it might appear on first thought that such a barrier should be 100 per cent resistant, actually, however, it is not practical to obtain 100 per cent efficiency. With a suitable barrier, however, the amount of moisture entering the wall is so small that it will not raise the moisture content to a degree that is objectionable.

The barrier, when located as described on the warm side of the dewpoint position, resists the passage of moisture while it is in the form of vapor and therefore before it has a chance to condense into water. Hence there is no hazard of water forming behind the plaster or other interior wall finish. The barrier also prevents

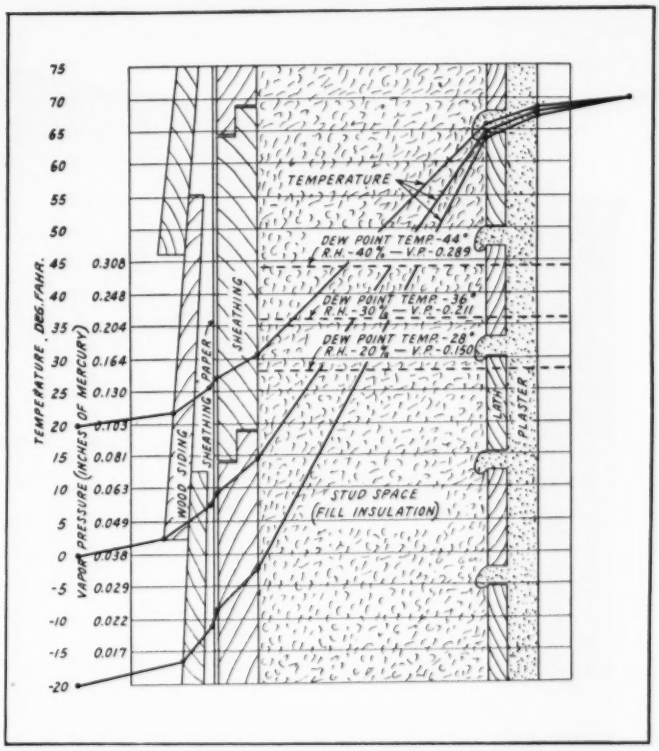


Fig. 5—This chart is the same as the one on the opposite page, but in this case insulation has been placed in the stud space

moisture from getting into the wall or attic space during the construction period.

Such vapor barriers should be applied vertically on side walls with edges lapping on the studs after the insulation is installed and before lathing. Horizontal joints should be made only where backed up with a plate or header. The barrier should be brought up tight against electric fixture outlets, air registers, door and window frames, and other similar openings. If wood lath, metal lath, or other types requiring a plaster key are used, the paper should be applied slightly loose so that the plaster can push the barrier back to form the key. Where the ceilings below the attic or roof are insulated, the barrier should be applied in a similar manner.

Walls finished with such materials as plywood, fiber board, plaster board, and the like, should also have the barrier as described. Sheathing paper when used outside of the sheathing in combination with the moisture barriers described should be water resistant but not very vapor resistant so that the small amount of water vapor that may leak through the barrier can escape outward.

Where the spaces are not standard between studs, in installing batt type insulation, such as occurs around windows, doors, and dormers, particular care should be taken to obtain good joints even if it is necessary to use one of the barriers previously described.

TYPES OF INSULATION

It is important that blanket types of insulation be carefully installed so that vapor cannot work through around the edges. The tabs should be nailed to the face of the studs with the insulation looping loosely inward away from the inner face of the wall, or if installed between

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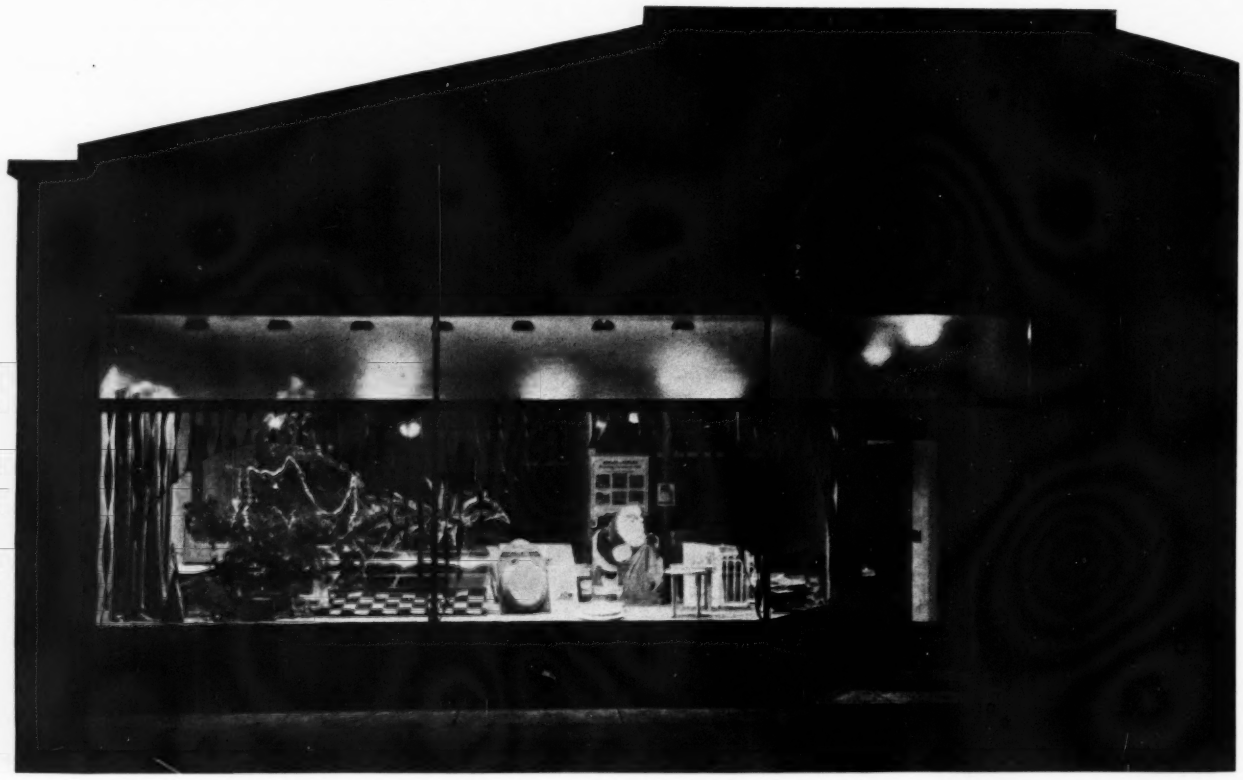


Scaling— *New Sales Heights . . .*

Quick demonstration plan brings real sales results for this master plumber

REMARKABLE for effective simplicity is the quick demonstration sales plan of George L. Green, contractor-dealer of Le Roy, N. Y. In a presentation time of five minutes, Mr. Green lays out the plan for a bathroom, gives the prospect or customer a visualization of the completed room, and makes for himself an accurate drawing to scale so that he can start installation work at once.

"Customers and home owners in every city and town are waiting for master plumbers to show them how a new bathroom with well placed, modern fixtures of better quality can change the present store room, closet or extra bedroom into an additional bathroom," says Mr. Green.

At the top of this page is shown Mr. Green's show window during the Christmas season. The effectiveness of a well decorated show window as a sales argument is aptly demonstrated here

"They are waiting to find out also how they can improve the arrangements of their present bathroom to conform to modern design."

But the customer is not kept waiting long when Mr. Green calls.

His brief case or demonstration kit contains a full-size template—a piece of paper cut to the actual length and width shape—of every fixture he has for sale. These are folded and placed in one division of the case. Then he has a complete set of small templates duplicating the large ones; but drawn to the scale of 1 in. to 1 ft. and cut from ordinary card stock. There are also small templates to represent doors and windows. The small templates are divided into three groups and placed in separate envelopes—one for the best grade of fixtures, one for average fixtures, and one for the lower priced fixtures. A pad of graph paper with 1 in. divisional

lines both ways, a 6 in. rule, a pencil, a few colored crayons and a set of color samples complete the outfit.

Thus equipped, he can make a complete sales presentation in the prospect's home on a living room or dining room table, or even in his own showroom or office. The prospect is favorably impressed with the efficiency and despatch shown by the salesman; he feels an immediate confidence in him. This confidence, plus the accurate picture in the prospect's mind, goes a long way toward the sale.

TYPICAL CASE

Let's take a typical case. A prospect has an 8 by 10 ft. store room which Mr. Green believes would make a needed and attractive extra bathroom. On a piece of graph paper he measures ten squares on one side and eight on the other, drawing straight lines to define walls of the room.

Then he places small door and window templates to correspond with the layout of the room, and marks drawer and shelf spaces on the diagram. By shifting the small templates of tub, lavatory and water closet, the ideal arrangment of these fixtures is quickly determined. To give the prospect an even better visualization, the large templates are laid down on the store room floor according to the layout already made to scale on the graph. The color samples, used as weights, give the prospect ideas for color. The job is sold, and Mr. Green traces the outlines of the small templates on his graph papers and crayons the fixture outlines in the color decided upon—blue in this case—and, presto, he has his working layout.

The customer is well pleased, and Mr. Green now suggests the possibility of brightening up the master bathroom. The process of arrangement is repeated, and Mr. Green sells two complete quality bathroom installations.

That is the way the quick demonstration plan has worked for George L. Green. The plan works best, he has found, when the owner, the housewife and the architect sit down together to consult with the dealer. "This is the way," says he, "that I believe the people involved in building or modernizing a home should be assisted by the master plumber in the selection of a better planned bathroom with a better grade of plumbing fixtures."

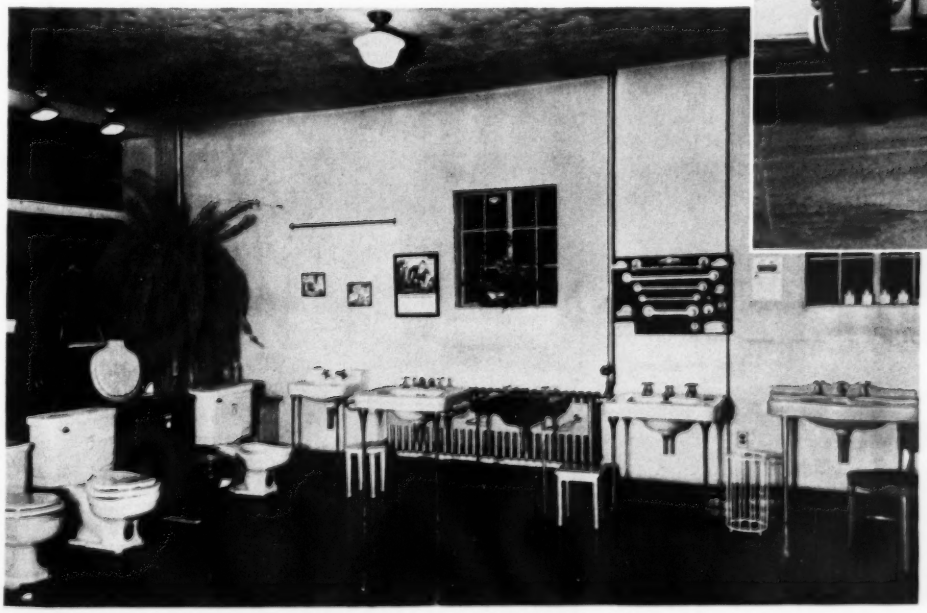
"I suggest making the templates of a material similar to that used in index cards, with the plumbing contractor's name imprinted or written on them. For showroom use or for architects, they might be cut from celluloid. The large templates can be made of heavy paper which would fold into a zipper case, and would then lie out flat when unfolded. I have found that using the color samples for the fixtures as weights to hold the large templates in place is helpful in selling quality colored fixtures.

USING LARGE TEMPLATES

"The large templates, however, are to be held in reserve and used when actual size is needed to make a full-sized picture with proper spacing of the fixtures, eliminating all doubt in the mind of the customer and clinching the order while the customer is in the buying mood. These templates will save additional calls by selling a bathroom to fit the customer's pocketbook or budget, the contractor-dealer trying to sell the best plumbing fixtures that the customer can afford to buy.

"I believe the widespread use of this plan would stimulate sales and create a demand in the plumbing business that would cause a national increase in sales. This

(Continued on Page 145)



Above, a traveling display truck which serves to bring the showroom to the customer is another way of making sales. At the left is shown Mr. Green's showroom

"Gratifying"—

15% increase in occupancy results from installation of A. C. hotel systems

Shown here is an exterior view of one of the hotels which was air conditioned to attract more permanent and transient guests during hot weather

ONE large market for air conditioning, which has not yet been merchandised to the fullest extent, is to be found among hotels. People who have been traveling are usually tired after the day's journey and, all other things being equal, will undoubtedly choose the hotel where they can secure air conditioned comfort. The management of the Mayfair and Lennox hotels in St. Louis recognized the importance of the added advantage of air conditioning and have just completed a program which included complete conditioning of both these hotels.

STATEMENT OF RESULTS

The results have been gratifying, as the following statement will indicate: "During the period from August 1 to August 31 our room occupancy averaged 15.2 per cent better than the similar period of last year at the Mayfair and 12.2 per cent better at the Lennox. Room occupancy at the Mayfair from June 21 to July 31 averaged 10 per cent better than for the same period of last year, while at the Lennox it was 5 per cent better. This was dèspite unusually cool weather as compared with the previous summer. Last year (the period from June 21 to August 31) for 32 days the maximum temperature averaged between 100 and 109 deg. Fahr., while this year we did not have a single day during the similar period when the temperature reached more than 98 deg. Fahr., and only 10 days when the temperature ranged between 95 and 98 deg. Fahr."

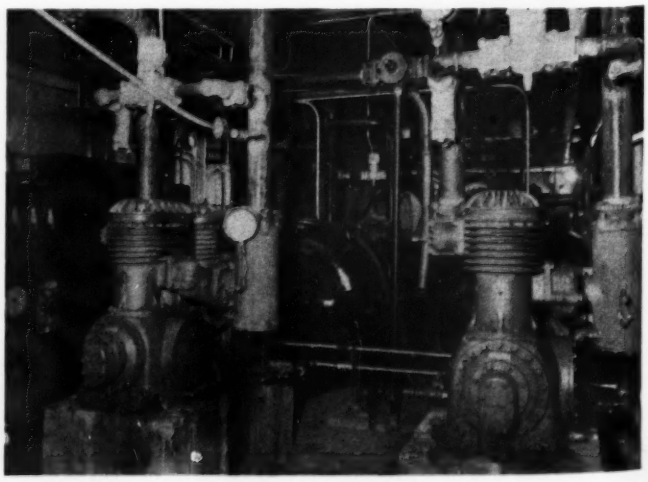
Including the air conditioning equipment which was already in service for the restaurants and ground floor shops, the two hotels now have a system capable of turning out conditioned air at the rate of 174,600 cu. ft. per min.

The air for the guest rooms is circulated through ducts made by lowering the ceilings of the corridors 1 ft. This furred space between the new ceiling and the old one—a space 19 in. deep and 72 in. wide—connects to the bedrooms through outlets over the doors.

Near the light switch in each room is a dial which controls the volume of air delivered to the room and thus enables each guest to regulate the temperature of his own room.

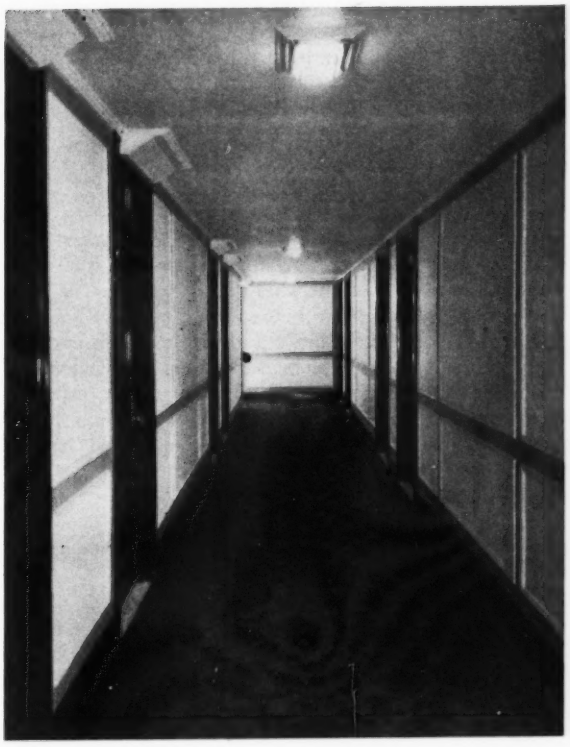
There are louvers inside the room which can also be adjusted, either to direct air over the bed or to diffuse the cool air throughout the room. These are directional flow registers.

Fifteen separate refrigerating machines were used in these two hotels. The view below illustrates several of the compressors



Results from Air Conditioning . . .

By comparing this picture with the one at the right, it may be seen where the ceiling was lowered and this space used for ducts



This view shows the halls after the system was installed. Conditioned air is delivered to the rooms over the door, as shown

The air conditioning apparatus is hardly noticeable to the guest. The louvers over the doors have been painted to harmonize with the walls. Furthermore, every precaution was taken to insure quiet operation of the system. No fans have been installed near the rooms, the entire flow of air being created by one centrally located fan on each floor. To prevent the vibration of the cooling machines from being transmitted to the ducts, canvas sections were inserted where the duct connection is made.

REFRIGERATING MACHINES

Fifteen separate refrigerating machines were installed on room floors of the two hotels. Each machine in the Mayfair provides cooled air for three room floors, and each machine in the Lennox supplies two floors. This enabled the hotels to install the machines and ducts, floor by floor, without impairing service by blocking off whole sections of the building. Usually, only one or two floors were temporarily vacated; never were more than three floors out of service at the same time.

Fresh air is supplied to the cooling units to prevent the stale air which sometimes results when 100 per cent recirculated air is used. The fresh air is drawn through dry mat filters to remove dust and grime. It then passes over coils circulating water at 45 deg. Fahr., supplied by the central refrigerating machines in the basement. This reduces the humidity in the air. By the time it reaches the rooms, the temperature of the conditioned air has increased about 20 deg. Fahr. and its relative humidity has decreased to 50 per cent.

As fresh air is brought into the room an equal volume is exhausted through two outlets, one under the corridor door and the other in the bathroom. This type of air conditioning gives the guest assurance of a constant supply of fresh air, so that cigarette smoke or other odors and impurities cannot accumulate. This is an all important feature of successful hotel air conditioning.

COST OF INSTALLATION

The cost per room of the installation was approximately $300, according to Harry Maurer, who has been chief engineer of the two hotels since they were erected in 1925 and 1929, respectively. Although accurate fig-

ures are not yet available, it is believed that the cost of cooling each room will be about 50 cents a day.

The managament states: "During the hot summer months we believe that a large number of St. Louisans living in West End residential districts will move into hotels where they can enjoy a refreshing sleep in an air-conditioned room. Thus a new class of local clients will be created where none existed before.

"We feel that there is a growing tendency in this part of the country for people living in smaller cities to spend their week ends and holidays in nearby large cities where they can find air conditioned hotel rooms, as well as cooled shops, theaters and restaurants. This type of week-end visitor will travel 100 miles or more to reach the nearest large city.

RECENT TENDENCY

"At present we are making a survey to determine the extent of this tendency. Although it is not yet completed, first results of the study seem to show that air conditioned metropolitan hotels can successfully compete with resort hotels for out of town trade, even in cases where the resort is nearer to the outlying city."

Refrigerating machines, using Freon as the refrigerant, were installed in the basement of the two hotels to supply the cooled water to the individual cooling machines.

In the Mayfair there are three machines, each having four compressors. Two of the machines are driven by one 150 h.p. direct connected motor, and the third is driven by a 75 h.p. motor.

REFRIGERATION CAPACITY

The Lennox has four refrigerating machines, powered by two 150 h.p. motors connected in duplicate.

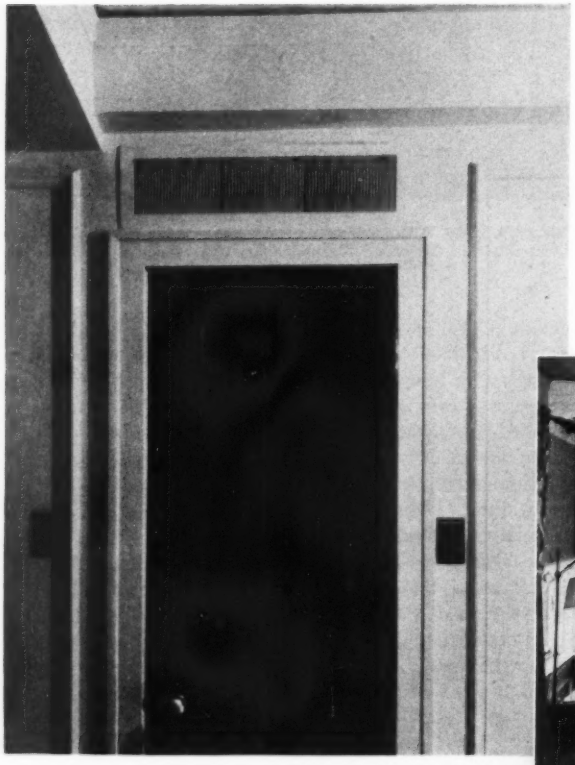
In both hotels the water which cools the condensers is returned to the roof, run through a cooling tower, and piped back through the refrigerators. The cooling tower for the Mayfair can handle 650 gal. of water per min.; that of the Lennox can circulate 800 gal. per min.

Approximately 190 tons of refrigeration are produced in each hotel. The flow of water through the individual coolers is at the rate of 402 gal. per min. at the Mayfair and 500 at the Lennox. Total horsepower of all motors, including those which drive the fans, is 307 h.p. at the Mayfair and 402 h.p. at the Lennox.

FLEXIBILITY OF SYSTEM

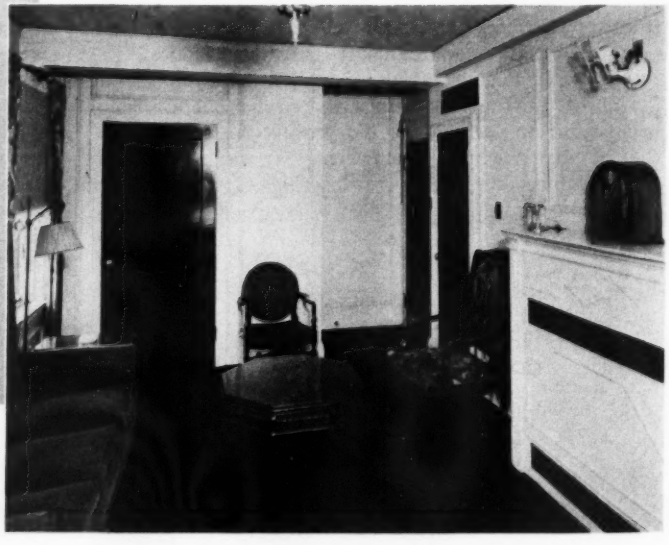
As was previously mentioned, this air conditioning equipment was not installed as one central system which would air condition the entire hotel from the one plant, but rather, only one portion of the hotel was out of service while the equipment was being installed for that section. At the time, the reason for doing that was to keep as much of the hotel as was possible open for occupancy. However, by this particular method of zone control, considerable reduction in cost of operation can be secured, should it become desirable, by merely blocking off those zones which are not in use. In this manner a very flexible system of control is secured.

No doubt the lead taken by this aggressive hotel management is indicative of a current trend which should result in many customers interested in installation of this kind.



The view directly above shows the directional flow register through which the conditioned air is admitted. Also shown here is the temperature control

The view directly below shows one of the air conditioned hotel rooms. Installation of this equipment has proved to be a real boon to the business of these two hotels during the summer



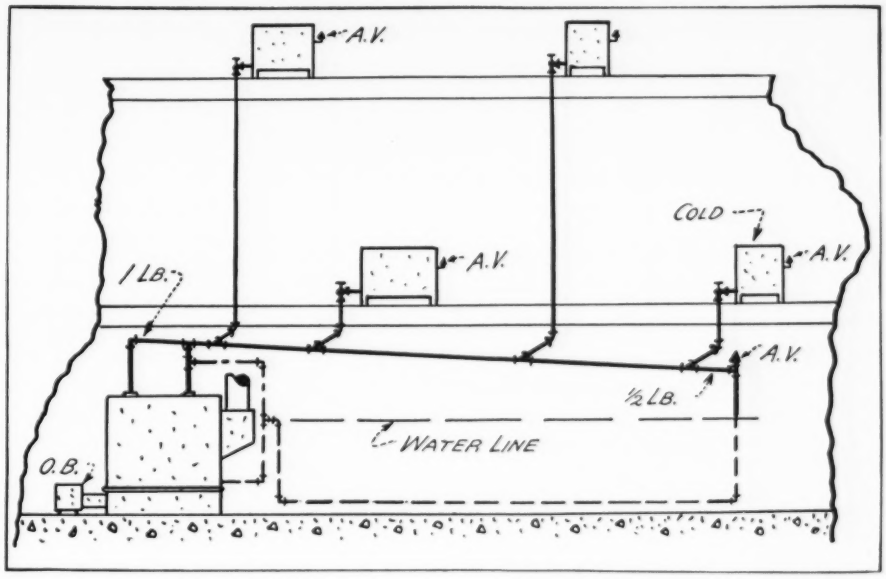


Fig. 1—This drawing indicates a condition where the heating system is not operating satisfactorily, as the one radiator so indicated does not heat enough. A solution as to the cause of the trouble can be determined from the layout which is shown here

The Cause—*and the Cure* . . .

Quite often the oil burner is blamed when other parts of the system are responsible

IN trouble shooting with oil burners the first thing is to determine whether the difficulty really is caused by the burner, its installation or the equipment. Practically every oil burner on the market will function in a satisfactory manner, if

(a) It is large enough for the job
(b) It is properly set and connected
(c) It is furnished with the grade of oil for which it is designed
(d) The equipment which it is to operate is in itself properly designed
(e) The chimney is of adequate area and of sufficient height.

On top of this the boiler must be clean, the water good and the equipment as a whole intelligently operated.

Thus it will be seen that there are many causes for trouble, any one or any combination of which may develop, and yet none of these is purely "oil burner trouble."

Trouble shooting then, consists of finding out the difficulty which is the cause of the trouble and then rectifying the difficulty. Should the trouble be caused by any of the foregoing items from (a) to (e) inclusive, or by a poorly constructed chimney, or a dirty boiler, it is no more oil burner trouble than if the same thing happened with other types of heating equipment.

On the other hand, the burner may not be properly set, the combustion chamber (this means the oil burner "setting") may be poorly arranged or the correct grade of oil may not be in use. While this, strictly speaking, is not a part of the oil burner, it does reflect on the operation of the burner and hence it becomes increasingly difficult to say where the oil burner stops and the accompanying features of installation begin. It must be remembered that the oil burner may be made by one manufacturer, the boiler by another and then the chimney is built by a contractor who usually is the one who constructs the building.

The first thing to do in the case of any difficulty is to localize the trouble, which may be done in different ways, according to what constitutes the difficulty. Possibly the most common troubles may be grouped under the heads of

1. Lack of heat (steam or temperature in the water)
2. Slowness to warm up (Time to heat)
3. One or more radiators do not heat when the others do
4. House cold in the morning
5. Smoke
6. Carbon
7. Too much oil consumption
8. Burner goes out

Let them be taken up in order and considered.

By lack of heat is meant *insufficient* steam in the case

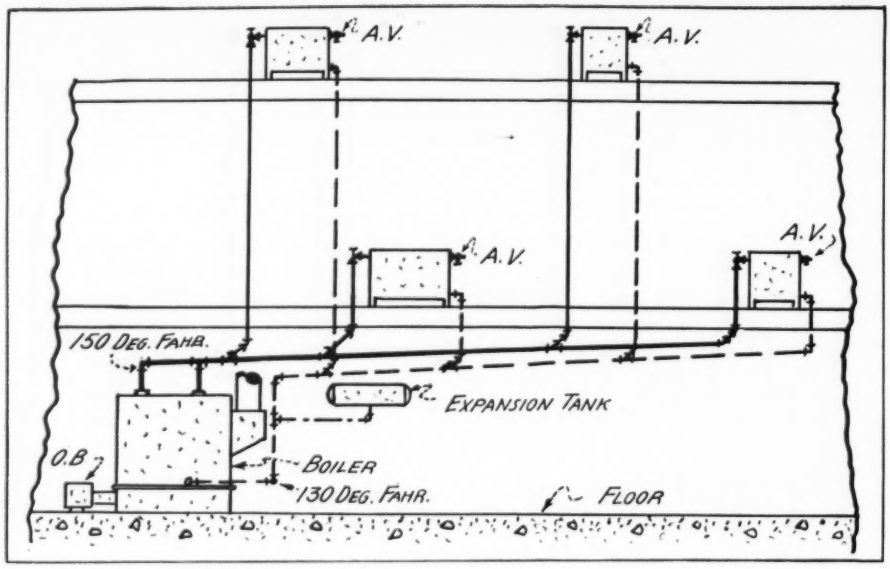


Fig. 2—Here is another heating system not operating satisfactorily. From the facts which are indicated on the drawing, and from the problem presented in the article, see if you can solve the difficulty which is shown

of a steam system or *too low a temperature* of water in a hot water heating system. In a steam system this may be caused by too small a boiler (a boiler with an inadequate amount of heating surface), by a boiler with dirty flues so that the heat does not pass through into the water, a burner which is too small so that it does not burn the required amount of oil under the boiler, dirty water in the boiler and, to some extent, by excess air.

On a hot water job, lack of temperature in the water may be caused by too small a boiler, by dirty flues in the boiler, a burner which is too small and to some extent by excess air.

The next problem is to determine which one, or which combination, of these cause the trouble. If the boiler is too small and does not absorb the heat produced, then this unabsorbed heat is passing out of the boiler and up the chimney; it will be indicated by high gas temperatures at the boiler outlet and any boiler showing 500 deg. Fahr. or over at the smoke outlet should be investigated for size, rating, etc.

Dirty flues also may show the same symptoms as the result is the same as with too small a boiler, *viz.*, the heat produced is not absorbed. An examination of the boiler flues and a good cleaning out of these flues will remedy this difficulty if it exists.

If the burner is too small a check up on the quantity of oil burned per hour multiplied by the Btu. contained in the oil will give the Btu. produced under the boiler and at least 70 per cent of this should pass into the boiler steam. Thus a steam system having 400 sq. ft. of standing radiation would require

400 sq. ft. radiation
100 sq. ft. piping (25 per cent)

500 sq. ft. total

and

500 sq. ft. × 240 Btu. gives 120,000 Btu.

to be delivered into the boiler every hour. As this is only 70 per cent of the Btu. developed under the boiler, the Btu. required to be produced by the oil would be

120,000 Btu./70 per cent or 171,430 Btu.

and if No. 2 oil were being used with about 139,000 Btu. per gal., this would require a minimum oil capacity under maximum load condition of

171,430/139,000 or 1.24 gal.

Probably an oil burner rated at 1½ gal. per hr. should be used.

Dirty water in the boiler will often cut down the steaming capacity, especially if there is a small amount of oil floating on the surface in the shape of a thin film. This is usually indicated when oil appears on top of the water in the gauge glass, or when dirty water runs out if the drain cock is opened. A good boiling out with some good boiler compound will remedy the dirty water difficulty, but it may have to be repeated several times at periodic intervals until all the oil has been removed from the system.

EXCESS AIR

Excess air is hardly likely to exist to such an extent as to seriously interfere with steam production but it may cause a greater oil consumption than is necessary. This will be discussed later. On the hot water job, whenever the water temperature cannot be raised to the proper degree, the treatment is practically the same as when there is a lack of steam.

In calculating the size of burner for an oil-fired hot water job the radiation may be taken at 150 Btu. per sq. ft., and had the 400 sq. ft. job calculated previously for steam been a hot water job using, say, No. 3 oil the calculations would have been

400 sq. ft. radiation (hot water)
100 sq. ft. piping (25 per cent)

500 sq. ft. total

giving the Btu. required at 150 Btu. per sq. ft. of

500 × 150 Btu. or 75,000 Btu.

the quantity of heat to be absorbed by the boiler per hour. If this is taken as 70 per cent of the heat produced by the combustion of the oil, the oil burned must produce

75,000 Btu./70 per cent or 107,140 Btu.

and the quantity of oil at 142,000 Btu. per gal., to be burned under maximum load would be

107,140/142,000 or 0.75 gal.

Probably a burner with a capacity of 0.9 to 1 gal. per hr. should be used. The same remarks in regard to excess air for steam systems apply equally well to hot water systems.

Under the head of "lack of steam" and "insufficient temperature" there also is a condition where the boiler produces sufficient steam pressure, or adequate water temperature, but where this pressure or temperature does not pass to the radiators. See Fig. 5. This is purely a matter of circulation in the system and the difficulty must be sought outside of the boiler room and somewhere in the system piping.

When a system is slow to warm up it may be due

to an undersized boiler, inadequate radiation, undersized burner, dirty boiler flues, dirty water (in a steam boiler), all of which may be aggravated, perhaps, by excess air.

If the boiler is undersized, or if the flues are dirty, pressure will come up slowly and there will be high flue gas temperatures; if the burner is undersized, the boiler will be slow to heat up but will have reasonable flue gas temperatures unless the burner is not functioning properly. There is, of course, always the possibility of a combination of both troubles.

With inadequate radiation the boiler will raise steam or water temperature rapidly and keep it there; all of the radiators will be heated but the temperature in the house will come up slowly. One remedy for this, with thermostatic control, is to set the clock on the thermostat so as to start the boiler at an earlier hour.

Dirty flues and dirty boiler water are easily determined by inspection. Excess air alone seldom produces this trouble but, if present, will add to it.

When one or more radiators are cold, it is purely a system difficulty if the boiler is maintaining a good steam pressure or a proper water temperature. If it is the result of poor steam pressure or lack of water temperature, proceed as outlined in "Lack of Heat." If not, correct the piping in the system, open the air valve and clean the thermostatic trap, clear up trapped runouts or runouts pitched wrongly.

When there is a condition of the house being cold in the morning it is usually a difficulty accompanying "Lack of Heat." A system not functioning properly from any cause is usually slow to warm the house in the morning. On the other hand, an entirely adequate system requires a certain amount of time to bring the house up to 70 deg. Fahr. and this time should be allowed.

A great deal depends on the construction of the house, its exposure to wind and how well the house is radiatored. If the radiation is slightly less than it should be, a longer time will be required (see Fig. 3).

Smoke is purely a product of the burner and may be due to lack of air, improper setting or inadequate combustion space. It indicates, of course, incomplete combustion and for this reason is a costly article as it may also produce complaints from the neighbors as well as the owner. An inadequate chimney will contribute to this nuisance.

To locate the difficulty, check the size of chimney, size of combustion space, see that adequate draft exists in the furnace and that sufficient air is being supplied. Complete instruction on draft and draft readings are given in a previous article.* Also see that no impingement of the flame is taking place on the boiler surfaces or on the setting. (See Fig. 4).

Carbon will be produced by impingement of the flame on any surface or by incomplete combustion. It usually is accompanied by, or produces, smoke. Carbon also may form on the burner tip and occasionally will require cleaning out.

A complaint often made and sometimes not substantiated is that too much oil is being used; no one wants to buy more oil than necessary but some wish to buy even less than that—hence the complaint. One difficulty to prove or disprove this allegation is the lack of proper devices to tell how much water a steam boiler is evaporating and how much hot water a hot water boiler is circulating.

Probably the best way to settle such an argument is to make a regular test of draft, oil, CO_2 and all the rest as described in detail in the article just mentioned.* This is the only way that authentic figures may be developed. If the oil is being burned in proper quantity for the size of the installation, if the draft is correct, if no smoke is produced, if the flue gas temperatures are reasonable and the CO_2 content what it should be, it is possible to rest assured that there is no difficulty with the oil burner no matter what other troubles may exist.

Occasionally the burner will go out. Water in the oil may cause it when it strikes the tip and extinguishes the flame. A stoppage in the oil line will do the same thing. Carbon on the tip will cause a gradual reduction in flame but not a sudden stoppage.

If the reader has read the foregoing carefully, it will

(Continued on Page 87)

*Domestic Engineering, March, 1935, p. 75.

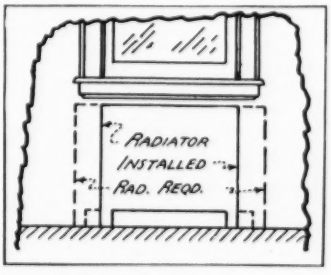


Fig. 3—At the immediate right is shown a diagrammatic illustration of an unsatisfactory heating condition brought about by too little radiation

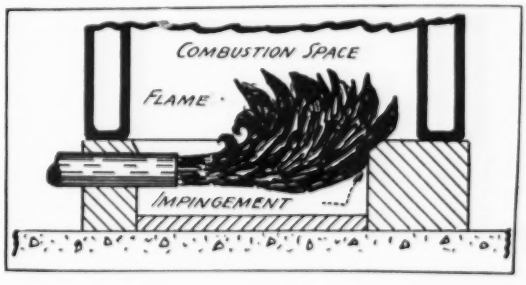


Fig. 4—At the far right, this drawing indicates a poorly adjusted flame. An area where the flame impinges is shown

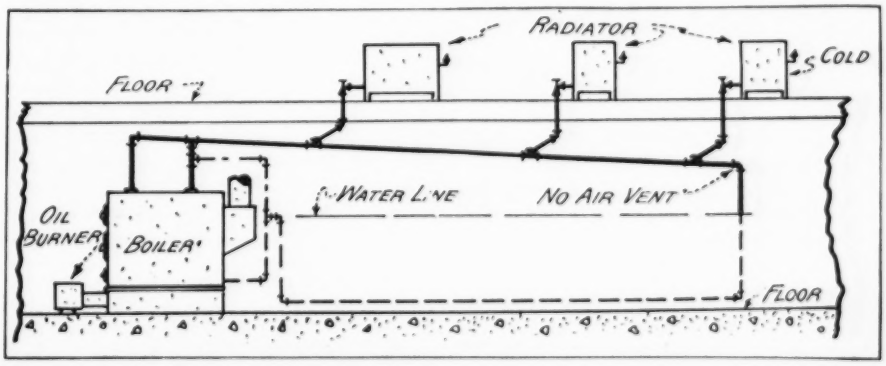


Fig. 5—At the right, below, is another problem to be solved. Although the system trouble is one of installation, it might reflect on the oil burner

Data—*Supplementary to tables . . .*

Flow of steam in pipes, equivalent length of run and orifice velocity are discussed

THIS month the series dealing with the flow of steam in pipes is concluded and the final curves are presented. A problem demonstrating the application of these curves is worked out and in addition there is a discussion of equivalent length of run, a necessary factor in figuring steam pipe.

Next month's Data will begin a discussion of automatic control equipment and the various applications of this equipment as it is used for automatic heating and air conditioning work.

Sheet No. 65

Curves for Steam Flow

Problem: What will be the delivery of a 4 in. pipe with a drop of 1 lb. per 100 ft. of equivalent run with steam at 125 lb. gauge?

Solution: As 125 lb. gauge is the pressure for which the curves are arranged no correction factor need be applied and the amount shown by the curve may be used.

Following up the pressure drop of 1 lb. from the bottom of Sheet No. 63 until it intersects with the 4 in. pipe curve, it will be seen that this falls about half way between 100 lb. per min. and 125 lb. per min., making the answer about 113 lb. per min.

Problem: What would the same pipe deliver if the steam were at 65 lb. gauge?

Solution: The delivery at 125 lb. gauge has been determined as 113 lb. per min. The pressure of 65 lb. gauge is

65 lb. plus 15 lb. or 80 lb. absolute pressure,

and the delivery factor for 80 lb. absolute on the correction factors is 0.77 so the delivery at 65 lb. will be

113 lb. $\times$ 0.77 or 87 lb.

Sheet No. 66

Curves for Steam Flow

The curves shown on this sheet are for 1 in. to 4 in. pipes with pressure drops up to 10 lb., and the same remarks given in the previous descriptions which show the flow of steam in pipes apply to Chart No. 66 as well as there.

Sheet No. 67

Equivalent Length of Run

Mention has been made several times of equivalent length of run; just what is the equivalent length of run? This is answered most easily by saying that the equivalent length of run is such a length of straight pipe that the resistance (and therefore the pressure drop) is equal to some shorter length of pipe with its accompanying fittings. Thus, if a fitting has a certain resistance and this resistance or friction is found to be the same as that produced by a 10 ft. length of the same size of pipe, then it is said that the equivalent length of run for the fitting is 10 ft. of pipe, since the fitting could be removed and 10 ft. of pipe substituted without any change occurring in the friction developed in the line.

Problem: A 2½ in. pipe 100 ft. long has three 90 degree ells, two 45 degree ells and two gate valves; what is the equivalent length of run?

Solution: The equivalent length for the straight pipe and the different fittings are shown below and the sum of all the different equivalent lengths will be the equivalent length of the line.

Straight pipe	100 ft.
Three 90 deg. ells	21 ft.
Two 45 deg. ells	8 ft.
Two gate valves	6 ft.
Total e. l. r.	135 ft.

Sheet No. 68

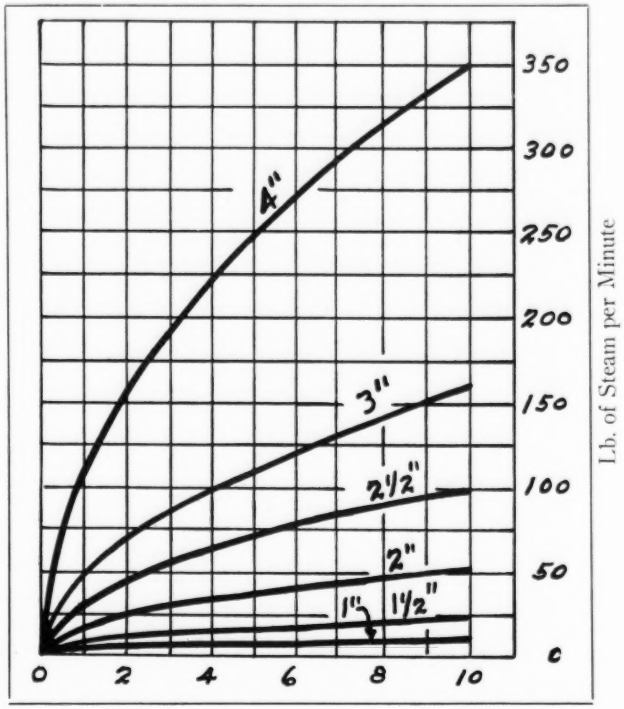
Orifice Velocity

When steam flows through an orifice into a lower pressure the velocity gradually increases until the absolute lower pressure becomes 58 per cent of the absolute higher pressure, at which time the flow has reached a maximum and is nearly 900 ft. per second. Any further reduction on the low pressure side will not increase this velocity even though the steam should flow into a perfect vacuum. The curve shown on this sheet illustrates this peculiarity, which at the same time has the advantage of giving a constant velocity through reducing valves, whenever the valve is reducing to any absolute pressure which is 58 per cent or less of the initial.

66—
Curves for Steam Flow

125 LB. GAUGE PRESSURE

For factors for other pressures see No. 65 and for equivalent length of run see No. 67.



Drop in Lb. per 100 Ft. Equivalent Run

Note: for 0 lb. to 1 lb. drop see Nos. 63 and 65.

67—
Equivalent Length of Run

The equivalent length of run is such a length of straight pipe whose friction would equal the sum of the friction on the actual length of straight pipe plus the added friction of the valves and fittings. The added length of run usually allowed for fittings, etc., is as follows:

Size of Pipe	90° Ell	45° Ell	Side Outlet Tee	Gate Valve	Globe Valve	Angle Valve
2"	5'	3'	16'	2'	18'	9'
2½"	7"	4'	20'	3'	25'	12'
3"	10'	6'	26'	3'	33'	16'
3½"	12'	7'	31'	4'	39'	19'
4"	14'	8'	35'	5'	45'	22'
5"	18'	10'	44'	7'	57'	28'
6"	22'	14'	50'	9'	70'	32'
8"	31'	18'	63'	12'	94'	42'
10"	39'	24'	76'	15'	118'	52'
12'	47'	28'	90'	18'	140'	63'

Example: What is the equivalent length of run for a 6 in. line 48 ft. long with three 90 degree ells, two 45 degree ells and 2 gate valves?

Solution:

48 ft. plus (3 × 22 ft.) plus (2 × 14 ft.) plus (2 × 9 ft.)
or
48 ft. plus 66 ft. plus 28 ft. plus 18 ft. = 160 ft. e. l. r.

Published by Domestic Engineering.

These tables combine information found in text books and in practical work. They will be added to each month until the series is completed

65—
Curves for Steam Flow

125 LB. GAUGE PRESSURE

Absolute Pres Lbs. per □"	Multiply Delivery by	Multiply Drop by
250	1.33	0.57
220	1.24	0.65
200	1.19	0.71
180	1.13	0.79
150	1.03	0.94
140	1.00	1.00
130	0.97	1.07
120	0.93	1.16
100	0.85	1.38
90	0.81	1.52
80	0.77	1.70
70	0.72	1.93
60	0.67	2.22
50	0.62	2.65
40	0.56	3.26
30	0.48	4.27
20	0.40	6.23

CORRECTION FACTORS

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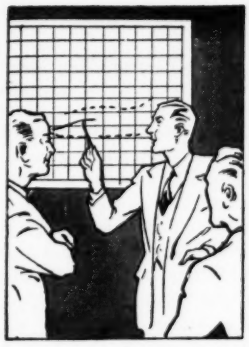
68—
Orifice Velocity



Business

Building Permits Gain . . . Dept. of Commerce Report . . .

Increase of 1.95 Per Cent

- *In spite of general business decline, plumbing and heating industry maintains lead over October of last year*

That a resumption of confidence in the future on the part of industry would have an immediate stimulating effect on business is clearly indicated by statistics.

Factory shipments in recent months have been behind last year for practically every type of equipment on which figures are reported to the Department of Commerce. Yet even as late as October, the poorest month to date, dollar volume of wholesalers was still 2.0 per cent ahead of the previous year. That unit volume for these wholesalers may be behind last year and the dollar volume increase due merely to higher prices, is quite probable. However, prices in the last 60 days have been moving downward and the spread between October 1937 and 1936 prices should not be great. In previous months dollar volume gain for wholesalers was great enough to show a unit volume increase despite higher prices.

Business Purchases

Hence the figures indicate that the consumer continues to buy but that business men are holding their purchases down to a minimum. That the consumer is cutting a bit on the luxuries is indicated through the fact that consumer purchases of air conditioning and oil burners were below last October. However, the drops were slight and meanwhile stoker purchases were up. Hence with these items, which have not as yet assumed a classification of "absolute necessities", consumer purchases are holding up well.

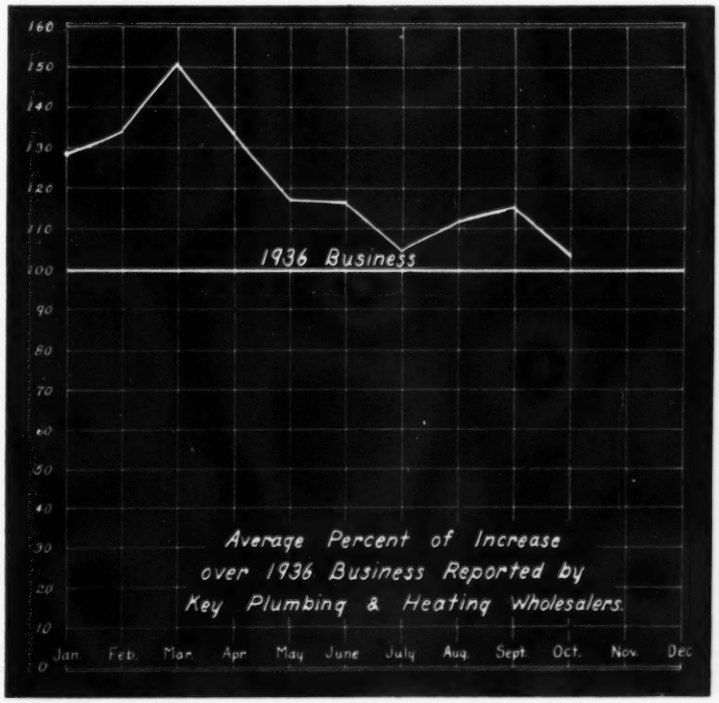
Apparently consumer purchasing power is still at a high level as department store purchases and similar indices are still up. A recent Department of Commerce report shows retail sales up 3½ per cent over October of last year. There have been numerous rumors to the effect that industrial employers are laying off help. However, officially confirmed reports have not been so numerous. The chances are that any increase in unemployment has not yet become sufficiently great to cause a sharp downtrend in consumer purchasing power.

Increased confidence that would cause wholesalers to replenish stocks and manufacturers to build up stocks once more should, therefore, cause an almost immediate resumption of business in general as well as in this industry in particular. It is hoped that something will come out of the present special session of Congress that will give business this needed confidence in the future and thus cause the business curve to move upward once more.

It is encouraging to note that in spite of a sharp decline in general business, and a shortage of building construction, October plumbing and heating business attained a lead of 1.95 per cent over October 1936.

According to the Department of Commerce, general business in October 1937 dropped to about 96 per cent of the 1923-25 average. October 1936 was about 102 per cent of this 1923-25 average—a difference of six per cent.

Department of Labor building permit figures show the value of new construction permits up 0.1 per cent in September over the same month of the previous year. This was a better showing than was expected and further encouragement can be drawn from the



This chart standing at 101.95, indicates an increase of 1.95 per cent over October, 1936

SEPTEMBER BUILDING PERMITS—48 Most Active Cities

State and City	New Residential Buildings	Families Provided For	New Non-Residential Buildings	Total (Including Repairs)
NEW ENGLAND STATES				
Boston, Mass.	$ 106,800	27	$ 835,680	$1,367,879
MIDDLE ATLANTIC STATES				
Buffalo, N. Y.	62,680	19	259,944	687,635
Glens Falls, N. Y.	4,000	1	500,500	511,190
New York City:				
The Bronx	1,264,300	235	389,320	2,013,950
Brooklyn	2,203,250	528	297,875	4,421,146
Manhattan	1,340,000	105	1,409,275	4,122,398
Queens	2,519,650	831	411,275	3,628,111
Richmond	132,215	27	109,945	341,745
Philadelphia, Pa.	917,130	209	3,964,943	5,420,956
Pittsburgh, Pa.	122,550	28	261,195	567,053
EAST NORTH CENTRAL STATES				
Chicago, Ill.	393,035	69	2,157,083	2,902,450
Evanston, Ill.	145,000	14	465,691	648,491
Peoria, Ill.	48,900	10	466,975	614,657
Wilmette, Ill.	396,500	10	700	400,100
Indianapolis, Ind.	210,510	53	345,107	682,326
Detroit, Mich.	2,243,391	418	860,492	3,606,779
Lansing, Mich.	43,000	14	621,740	703,795
Cincinnati, O.	722,250	115	241,320	1,195,505
Cleveland, O.	320,000	30	365,700	1,081,700
Columbus, O.	346,950	66	43,850	441,900
Toledo, O.	83,600	17	287,807	484,067
Madison, Wis.	86,500	19	18,645	516,505
Milwaukee, Wis.	398,640	74	490,238	1,171,831
West Allis, Wis.	28,300	7	637,800	791,950
WEST NORTH CENTRAL STATES				
Minneapolis, Minn.	227,210	58	364,925	783,945
St. Paul, Minn.	266,040	62	665,936	1,111,019
Kansas City, Mo.	92,000	28	2,690,819	2,886,419
Kirkwood, Mo.	73,740	17	1,102,230	1,177,760
St. Louis, Mo.	365,200	98	101,863	677,308
SOUTH ATLANTIC STATES				
Washington, D. C.	1,659,200	383	192,880	3,061,889
Jacksonville, Fla.	234,400	52	137,050	539,561
Miami, Fla.	652,534	194	174,200	1,038,457
Miami Beach, Fla.	1,081,005	72	226,870	1,376,377
Baltimore, Md.	520,000	147	281,500	1,186,900
Charlotte, N. Car.	101,550	25	29,630	403,163
Roanoke, Va.	31,985	8	5,653	1,115,485
EAST SOUTH CENTRAL STATES				
Memphis, Tenn.	138,450	43	74,620	726,015
WEST SOUTH CENTRAL STATES				
New Orleans, La.	191,499	43	153,638	421,770
Oklahoma City, Okla.	309,450	101	215,222	559,157
Dallas, Texas	214,450	101	85,625	488,670
Galveston, Texas	150,000	18	2,222,825	2,403,882
Houston, Texas	824,615	222	111,700	1,009,430
MOUNTAIN STATES				
Denver, Colo.	791,800	82	221,268	1,112,162
Salt Lake City, Utah	232,950	65	106,130	423,865
PACIFIC STATES				
Culver City, Calif.	10,000	4	801,000	816,624
Long Beach, Calif.	235,100	80	48,185	481,565
Los Angeles, Calif.	2,872,123	768	894,174	4,776,526
Oakland, Calif.	244,700	66	108,582	505,383
Pasadena, Calif.	89,317	20	271,696	448,693
San Diego, Calif.	459,658	147	109,055	671,858
San Francisco, Calif.	401,205	96	257,282	889,832
Portland, Ore.	299,550	74	256,005	726,645

fact that the federal government plans to promote new construction through a revision of F.H.A. regulations. However, any sharp uptrend in new construction is highly improbable until rents have reached the point where new buildings can be constructed at a satisfactory profit. The tremendous potential market in existing buildings, however, is such that the uptrend of this industry should resume before the anticiapted uptrend in new construction.

Key Wholesalers

For the month of October, 129 wholesalers reported an average increase of 1.95 per cent over October, 1936. Their average gain for the first ten months of 1937 over the same period of last year was 18.41 per cent. Twenty-three of these firms expect business in November to be better than in November last year, 45 expect it to be about the same, 46 expect a decline and 15 did not comment.

New England States: Ten wholesalers in the New England States reported an average increase of 6.2 per cent for the month of October over October 1936, and an increase of 19.5 per cent for the first ten months of this year over the like period of 1936. Only one of these firms reported an actual decline from last year for the month of October. This wholesaler said that the decrease was due to one job for which they furnished material in October 1936 which ran into considerable money. All the other months this year, with the exception of May, were far ahead of 1936. Four wholesalers anticipate an increase in November over November last year, one expects business to be about the same, two expect a decline; while three did not comment. A company not commenting on the prospects for November remarked that they could not estimate future business because of pessimistic talk, most of which they doubt.

Middle Atlantic States: Forty-eight Middle Atlantic wholesalers reported for October an average decline of 6.1 per cent from October last year, and an increase of 13.8 per cent for the first ten months of 1937 over the same period of 1936. The majority of declines were in the state of New Jersey, while in New York and Pennsylvania about 50 per cent of the wholesalers showed increases over October 1936.

Firms in this section report a lack of confidence because of stock market psychology, a lack of residential construction and a prevailing tendency toward the buying of only absolute necessities.

South Atlantic States: For the month of October, eleven firms in this section report an average increase of 2.2 per cent over October last year. For the first ten months of 1937 these firms report an average gain of 27.2 per cent over the same period of 1936. Four of these wholesalers anticipate an increase in November business over November of last year, one expects business to be about the same, five expect a decline, while one did not comment.

South Atlantic wholesalers report—"November sales in 1936 were largest of the year." "Business generally has been better this year than in 1936, but the rate of increase will probably be lower in November than in previous months this year due to an unsettled market." "A decrease in building."

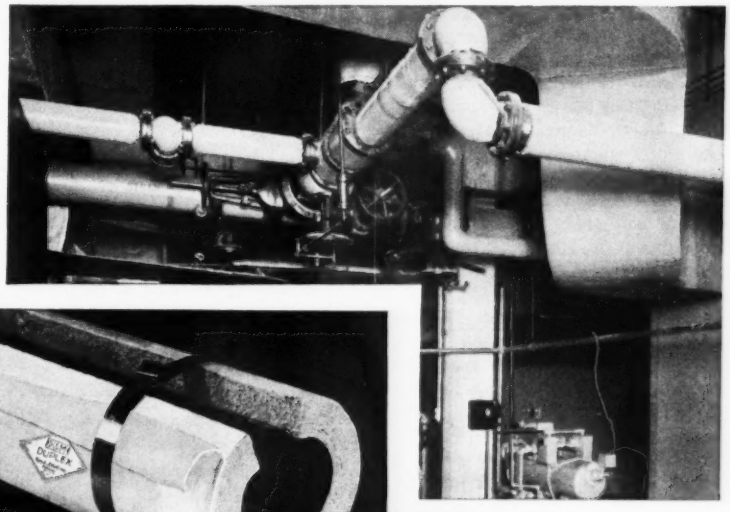
East North Central States: Twenty-seven East North Central wholesalers report an average gain of 13.0 per cent for October, and an increase of 26.0 per cent for the first ten months of 1937 over the same period of last year. About 75 per cent of these firms reported gains over last year's October.

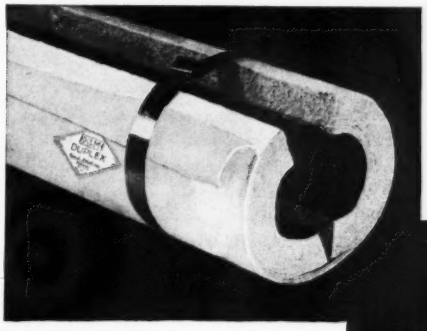
East North Central wholesalers report—"Some big orders still to be delivered." "Total expenses for ten months of 1937 are 18.3 per cent above same period of 1936." "Metal market is weak and decline in mill production is leaving a surplus of labor."

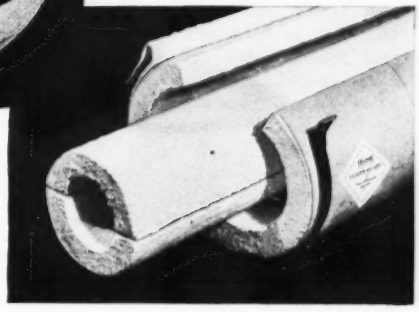
East South Central States: Three wholesalers in this section report an average gain of 0.03 per cent over October 1936. For the first ten months the average gain over the same period of last year was 19.4 per cent. Two of these firms expect November business to show a decline from November last year, and one did not comment.

East South Central wholesalers report—"We have just had a month of unusually good business in heating which was unexpected." "Government work has been practically completed. In the latter months of last year building was on the up-grade with a steady improvement each month. Building started to decline locally the latter part of August and is continuing this decline. The uncertainty of what the special session of Congress will do—the prospects of increased taxes—the stock market decline are all bearish news and have at least placed a temporary stop to both home and speculative building. Per-

Insulations that build business for you . . .







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Through their durability and high efficiency, K & M heat insulations save money for your customers and reflect credit on the quality of your work. K & M Duplex Wool Felt is a relatively inexpensive product, and because of its universal liner, it is highly effective as an insulator on either cold water or hot water lines. It will withstand heat up to five pounds of steam.

85% Magnesia is well known as one of the most efficient insulators ever developed for temperatures up to 600°F. It is immune to floods, water leakage and steam.

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KEASBEY & MATTISON COMPANY AMBLER, PENNA.

sonally we feel that these matters will be properly adjusted and that after the first of the year we will find that the decline will be stopped and building will again start on an uptrend."

West North Central States: In the West North Central States 17 wholesalers reported an average decline of 0.4 per cent for October from the same month of last year, and an advance of 11.3 per cent for the first ten months of 1937 over the like period of 1936. Two of these firms anticipate an increase in November over November last year, ten expect business to continue about the same, four expect a decline, while one did not comment.

West South Central States: Three wholesalers in this section report an average decline for October of 4.0 per cent from October last year and an increase of 17.0 per cent for the first ten months of 1937 over the same period of 1936. One of these firms expects an increase in November over November 1936, one expects business to be about the same and one expects a decline.

Mountain States: In the Mountain States, October, as reported by three wholesalers increased 34.2 per cent over October 1936. For the first ten months of 1937 the average increase over the same period of 1936 reported by these firms was 10.3 per cent. All three of these wholesalers expect November business to be better than that of November 1936.

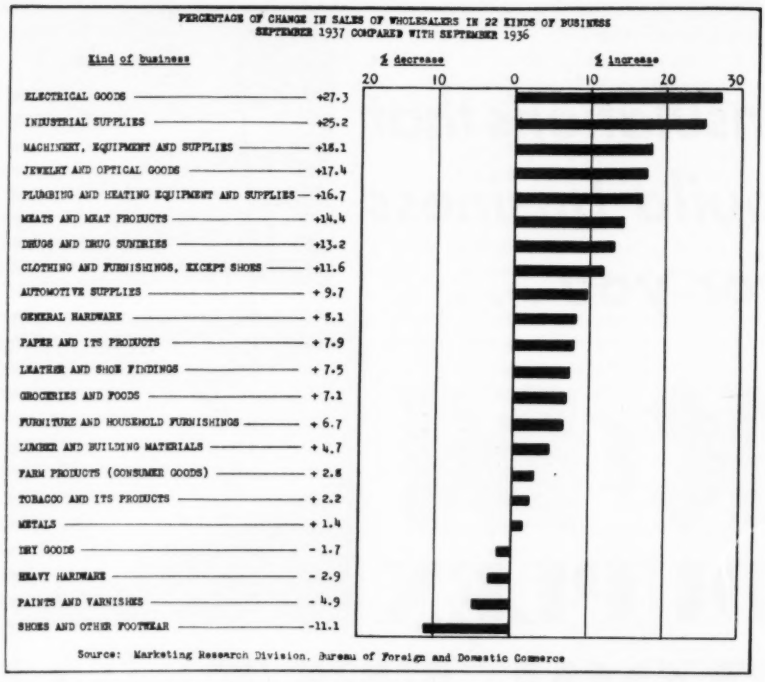
Mountain State wholesalers report—"The revised Colorado plumbing ordinance may have an effect on new cottage work in this territory, as it increases the cost on plumbing from $25 to $50 per house." "Good weather and building still continues." "General business has slackened." "Futures sold indicate that November business will be better than last year's."

Pacific States: Seven Pacific State wholesalers report an average gain of 3.1 per cent for October over October last year, and for the first ten months of 1937 over the same period of 1936, they report an average increase of 23.3 per cent. One of these firms expects business in November to be better than last year's November, one expects business to be about the same and five expect a decline.

Department of Commerce Reports Wholesale Sales

Ninety-two plumbing and heating wholesalers reporting to the Department of Commerce in September showed an average gain of 16.7 per cent over September 1936. DOMESTIC ENGINEERING's monthly Market Report issued Oct. 19, 1937 showed a September gain of 14.4 per cent for 95 wholesalers.

The chart on this page shows the position of the plumbing and heating industry's gain among other industries, according to the Bureau of Foreign and Domestic Commerce.


PERCENTAGE OF CHANGE IN SALES OF WHOLESALERS IN 22 KINDS OF BUSINESS
SEPTEMBER 1937 COMPARED WITH SEPTEMBER 1936
Kind of business
% decrease
% increase
20
10
0
10
20
30
ELECTRICAL GOODS +27.3
INDUSTRIAL SUPPLIES +25.2
MACHINERY, EQUIPMENT AND SUPPLIES +18.1
JEWELRY AND OPTICAL GOODS +17.4
PLUMBING AND HEATING EQUIPMENT AND SUPPLIES +16.7
MEATS AND MEAT PRODUCTS +14.4
DRUGS AND DRUG SUNDRIES +13.2
CLOTHING AND FURNISHINGS, EXCEPT SHOES +11.6
AUTOMOTIVE SUPPLIES + 9.7
GENERAL HARDWARE + 8.1
PAPER AND ITS PRODUCTS + 7.9
LEATHER AND SHOE FINDINGS + 7.5
GROCERIES AND FOODS + 7.1
FURNITURE AND HOUSEHOLD FURNISHINGS + 6.7
LUMBER AND BUILDING MATERIALS + 4.7
FARM PRODUCTS (CONSUMER GOODS) + 2.8
TOBACCO AND ITS PRODUCTS + 2.2
METALS + 1.4
DRY GOODS - 1.7
HEAVY HARDWARE - 2.9
PAINTS AND VARNISHES - 4.9
SHOES AND OTHER FOOTWEAR -11.1
Source: Marketing Research Division, Bureau of Foreign and Domestic Commerce

This chart indicates the position of the plumbing and heating industry's gain among other industries

Air Conditioning

Forty-three utilities reported a total of 103 contracts issued for summer and year 'round air conditioning jobs in October. This is a decline of 16.26 per cent from the 123 contracts issued in October 1936. Horsepower in the reporting territories totalled 3,873.78 as against 7,040.88 in 1936—a decrease of 44.98 per cent.

For the first ten months the same 43 utilities reported a total of 3,142 installations requiring 71,015.50 horsepower in 1937 as compared to 2,219 installations requiring 46,996.10 horsepower in the same period of 1936. The increase in number of jobs was 41.60 per cent and the increase in horsepower was 51.11 per cent.

Stokers

Sixteen cities reported a total of 867 stoker permits issued in October 1937 as against 722 in October 1936—an increase of 20.08 per cent. For the first ten months permits in these cities totalled 3,230 in 1937 which is an increase of 32.27 per cent over the 2,442 permits issued in the same period of last year. Since permits usually are issued only on the larger installations, these figures merely indicate the trend.

Oil Burners

As reported by 45 cities, October oil burner permits totalled 5,788 this year as against 6,885 in October 1936—a decline of 15.93 per cent. For the first ten months of 1937 permits showed a decline of 0.45 per cent. Actual figures as reported by 45 cities for the 10 months' period were 27,093 in 1937 and 27,215 in 1936.

Building Construction

According to the Department of Labor, building activity, measured by the value of permits issued in September, shows a slight gain over September 1936, but a decided decrease compared with August 1937. Reports received by the Bureau of Labor Statistics from 1,521 cities with a population of 2,500 or over show that there was an increase of one-tenth of 1 per cent in the value of buildings for which permits were issued during September compared with September 1936. The increase, however, was brought about by gains in the value of new non-residential buildings and in additions, alterations, and repairs to existing structures, as there was a decrease of 13.9 per cent in the value of new residential construction. Private residential construction showed a decrease of 3.7 per cent over the year period.

Washer Sales

Household washer shipments in the first nine months of 1937 were greater than in any whole year of the industry's history with the single exception of 1936, totalling 1,394,755 compared to 1,379,062 in the three quarters of 1936.

"Gas for the 4 Big Jobs"

Get a "LIFT" with this powerful sales story

IN THE BUDGET HOME TOO...
GAS MAKES THE "4 BIG JOBS" COMPLETELY AUTOMATIC
GAS IS YOUR QUICK, CLEAN, ECONOMICAL
Question: "How can we get the most comfort in our home with the lowest operating costs?"
Answer: "Let modern Gas Equipment do the 4 Big Jobs!"
GAS IS YOUR QUICK, CLEAN, ECONOMICAL SERVANT

YOU *can* get a real "lift"—in more installations and bigger profits, if you let this big advertising campaign work for you.

More than 700 gas companies have joined forces to promote the use of *gas for cooking, refrigeration, water-heating, and house-heating.* Advertisements like these are *now* appearing and being *read* in national magazines with a circulation among 18,000,000 of your best customers and prospects.

The results of this campaign are already being felt in increased sales of gas appliances. So if you want your full share of this profitable business, *now is the time for you to get behind it.* Your gas company will gladly help you cash in on the growing preference for "GAS FOR THE 4 BIG JOBS." Better talk it over with them today.

American Gas Association

Be sure the Gas Appliances you sell carry the Approval Seal of the American Gas Association Testing Laboratories.

Building Construction

Building activity, measured by the value of permits issued in September, shows a slight gain over September 1936, but a decided decrease compared with August 1937. Reports received by the Bureau of Labor Statistics from 1,521 cities with a population of 2,500 or over show that there was an increase of 0.1 per cent in the value of buildings for which permits were issued during the current month compared with September 1936. The increase, however, was brought about by gains in the value of new non-residential buildings and in additions, alterations and repairs to existing structures, as there was a decrease of 13.9 per cent in the value of new residential construction. Private residential construction showed a decrease of 3.7 per cent over the year period.

In September 1936 the value of contracts awarded for PWA housing projects amounted to more than $6,600,000. During September 1937, no contracts were awarded for PWA housing projects.

Compared with August, the total value of buildings for which permits were issued in September showed a decrease of 8.5 per cent. The value of residential buildings declined 1.4 per cent. Considerably greater increases are indicated by permits issued for new non-residential buildings and for additions, alterations and repairs to existing structures.

Although the value of total construction declined 8.5 per cent from August for the country as a whole, there were gains in September in three geographic divisions—the West North Central, Mountain and West South Central States. In these three regions and in the New England and South Atlantic States, there were also increases over the level of September 1936.

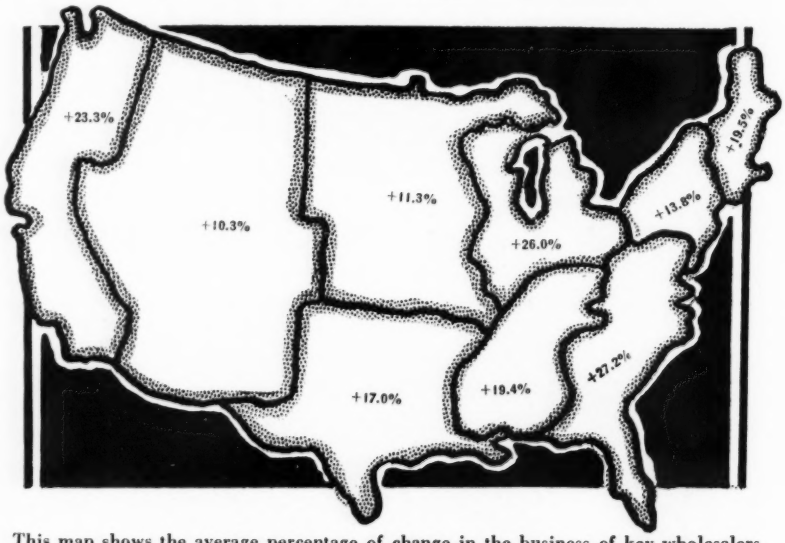
Statistics on Power

The role of power in the upbuilding of America is reflected in a new pamphlet—"Facts About Power"—issued by the Chamber of Commerce of the United States. These facts show that the United States not only leads the world as an actual and potential power using country but also leads in the use of power per worker. It uses more than a third of the world's output of electric energy and has nearly a third of the world's developed water power.

Some of the striking facts about power are: Including transportation—principally the automobile—the total power capacity of the United States increased from 64,000,000 to 1,663,000,000 hp. in the 30 years from 1899 to 1929.

The power capacity of stationary plants supplying American Industry in 1929 was the equivalent of 780,000,000 workers. In the manufacturing industries alone each worker had, in power, the equivalent of 48 helpers.

Power in the form of electric energy supplied by public utilities increased from 39,000,000,000 kilowatt hours in 1919 to 113,000,000,000 kilowatt hours in 1936. Power distributed to urban and suburban homes doubled in the period 1927-1936. Power distributed to farm homes increased from 860,000,000 kilowatt hours to 2,014,000,000 in the same period.



This map shows the average percentage of change in the business of key wholesalers in each section of the country for the first ten months of 1937 compared with the first ten months of 1936

SHIPMENTS OF PLUMBING & HEATING ITEMS

	Sept., 1937	Sept., 1936	Total First 9 Months 1937	Per cent of Change First 9 Mos. 1937 Compared with Same Period of 1936
Steel Boilers Number of units	992	1,233	8,620	+9.77
Range Boilers Number of units	42,157	96,688	603,209	—11.06
Domestic Water Systems Number of units	13,817	15,537	150,028	+23.71
Domestic Water Softening Apparatus Number of units	1,109	954	9,612	+14.66
Plumbing Brass Thousands of pieces	1,577	1,730	16,856	+21.87
Oil Burners Number of units	33,711	35,405	149,870	+10.79
Mechanical stokers (for residential, apartment and small commercial use)	18,769	16,139	71,301	+40.92
Cast Iron Boilers Thousands of pounds	46,722	39,358	188,060	+2.20
Cast Iron Radiation Thousands of sq. ft. of heating surface	9,122	9,190	48,771	+0.97

KEY WHOLESALERS

	Pct. of change in October, 1937, as compared with same month of last year	Pct. of change for first 10 months of this year as compared with the same period of last year	Prospects for next month compared with the same month of previous year appear				
			Better	Same	Worse	No Comment	Total Reports
New England	+ 6.24	+19.46	4	1	2	3	10
Middle Atlantic	— 6.09	+13.76	3	19	20	6	48
South Atlantic	+ 2.24	+27.21	4	1	5	1	11
East North Central	+12.95	+26.00	5	12	7	3	27
East South Central	+ .03	+19.35	0	0	2	1	3
West North Central	— .40	+11.26	2	10	4	1	17
West South Central	— 4.00	+17.00	1	1	1	0	3
Mountain	+34.17	+10.33	3	0	0	0	3
Pacific	+3.13	+23.29	1	1	5	0	7
TOTAL			23	45	46	15	129

Housing Conference

● *Construction, business and government leaders ponder reasons for slowing down of residential construction—Suggest means of speeding up home building*

What are the causes of the recent slowing down of residential construction? What can be done about it? The answers to these two questions are of vital interest to the building and associated industries such as our own. They are important to the public, which has a stake in adequate housing. They concern business men too, because of the influence of construction activity or inactivity upon general economic conditions. Generally the laggard in recovery periods, building construction is also usually the first to slump in a period of recession. In these facts lies the reason for the conference on residential construction held in Washington, D. C., on November 17 and 18 under the sponsorship of the United States Chamber of Commerce.

According to one of the speakers, this year has witnessed a third quarter decline in building contracts relatively greater than in any year of the past twelve. Another points out that the subject under discussion is not one of minor importance, but one which as a form of property represents nearly one-fifth of the total wealth of the United States and as an industry in good times releases primary purchasing power of possibly four and one-half billion dollars annually.

The need for new housing is admitted, although estimates vary as to the size of the need. One estimate is that 500,000 to 800,000 units annually will be needed during the next ten years. Yet this year we are building less than one-third of 1925's 900,000 units. The rise in rents, which in some localities approximate pre-depression levels, is also an indication of increased building in the future. A quick glance at building reveals a situation which seems to be paradoxical. The aim of the participants in the conference was to look beneath the surface in an effort to find means for breaking the dam which now is holding back the floodwaters of demand for homes.

In this account some of the points made by the committee on principles will be quoted in part, and some of the opinions on these points will be briefed;

Competition

"The changing social order brings with it competition for the building dollar. The conference has directed attention to certain means that may be employed to assist the industry in meeting this competition: (1) Emphasize the economic advantage of home ownership. (2) Sell the security, comfort and utility of modern home occupancy."

Some interesting comments on the above points were made by W. D. M. Allan, of the Portland Cement Assn. ". . . It is a fact that several hundred thousand families which had the money and income and could build in 1937 decided that building a house was not a good investment. It is easy to understand why folks without money do not build. But why do folks with money refuse? If we can find the answer to this problem, possibly enough building can be started to give employment to those who do not have sufficient funds so that they, too, in increasing numbers can build houses.

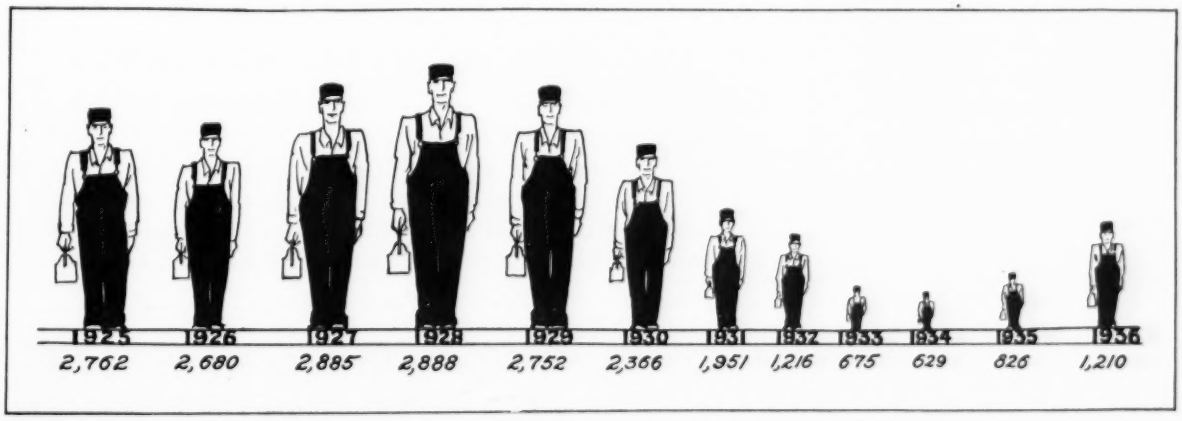
"The following are, in my opinion, some of the less commonly mentioned but, nevertheless, important reasons why folks who could afford it do not build. These reasons are in addition to high real estate taxes, general business uncertainty and large unemployment.

"Prospective buyers have been told repeatedly by the building industry that just around the corner they can get a factory-made house with all of the modern conveniences at about one-half the price they would pay for a house constructed by ordinary methods. Suppose that General Motors would announce several times during the year that in a short time a new model Chevrolet would be available that was far superior to the present model and at half the price. How many 1938 Chevrolets do you suppose would be sold? Not many, I am sure. Is it any wonder that a great many potential house buyers are still waiting for their $6,000 house for $3,000?

"A second important reason why folks aren't buying houses is that too many of their friends who did buy during the previous building boom are thoroughly soured on what they got. A house which in three or four years begins to sag and crack, requires high maintenance expense and has low or no resale value is a poor investment. House buyers are being educated to know the requirements of good construction. When they see the same jerry-building going on today that was common in the last boom, most of them go back to their apartments and spend their down payments on something in which they have confidence—but not a house. . ."

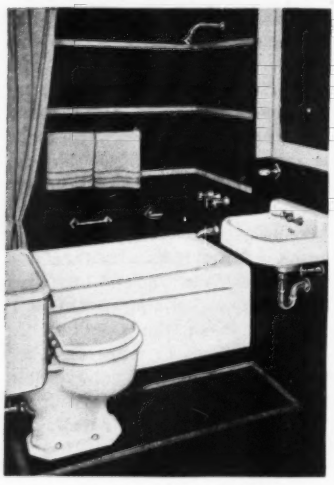
Allied to the problem of promoting the sales of homes was the movie presented and discussed by Russell G. Creviston, director of advertising and sales promotion for Crane Co. His topic was "Home Shows—Construction Week."

(Turn to Page 88)



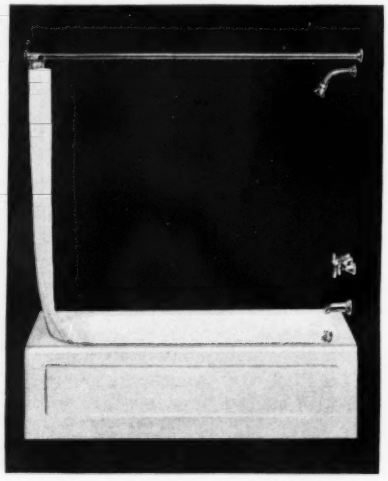
Number of persons employed in construction (thousands of persons). Number in each case is the peak for that year

"EXPENSIVE? NO, MA'AM. IT ISN'T EXPENSIVE AT ALL! LET ME TELL YOU ABOUT THE KOHLER MATCHED BATHROOM."



Master Plumber: First, the fixtures are all of the latest design—the same high quality you find in those selling for a lot more. You can't beat them for small homes where space is limited.

Customer: It's just the kind of bathroom we've been planning for the children.



Master Plumber: Fine! Take the Metropolitan bath, for instance. It's recessed and built-in, making a showering stall. The wide flat bottom spells safety. The spray confines itself to the bather's body. The sanitary Clearpass drain keeps scum and lint from backwashing into the clean bath water.

Customer: Sounds good. I like that lavatory too.

Master Plumber: It's the low-priced Hampton. Notice the built-in shelf. Plenty of space for all sorts of bathroom articles. Big basin too. The mixer fitting is pretty rare for such a low-priced lavatory.

Customer: I like the Hampton's sleek appearance. Especially the way the pipes are pulled up underneath.

Master Plumber: Then there's the Wellworth closet. It's free-standing with the back accessible for cleaning. The tank's resting on the bowl. It's a reverse trap. No metal flush elbow! It's quiet and easy to keep clean.

Customer: It's one of the best looking closets I've seen. In fact, I think the whole bathroom's just what we want. Mr. Ray and I'll come in tomorrow and get things settled.

It looks like a sale for this Master Plumber! Home owners and remodelers in your community *are* fixing up their bathrooms. They're buying Kohler fixtures—bath, lavatory and closet, matched in design . . . in usefulness . . . in quality. They're buying Kohler kitchen fixtures too. Now's the time to stock-up and cash-in. Write Kohler Co. *Founded 1873.* Kohler, Wisconsin.

70,400,000 KOHLER MESSAGES

By appearing continuously in selective magazines devoted to the home, national Kohler advertising reaches those who buy 77% of all home equipment sold, including plumbing fixtures. By the end of the year, 70,400,000 Kohler "plumbing messages" will have entered more than 10,000,000 American homes, or *one out of every three* families in the United States. Alert Master Plumbers are tying-in and *cashing-in* now.

KOHLER OF KOHLER

PLANNED PLUMBING AND HEATING

Oil Burners—

(Continued from Page 75)

be easy to locate the trouble in the experimental cases given here to test the application of the suggestions given. For example, in Fig. 1 is shown a one pipe gravity steam system which has 1 lb. gauge pressure at the boiler with ½ lb. pressure at the far end of the system and all radiators hot except the one shown as "cold."

In the first place the boiler has steam pressure up and is carrying the system; therefore no trouble need be looked for there. At the same time all of the other radiators are hot, and the steam and return main must be functioning properly to operate the other radiators. Besides, there is ½ lb. pressure at the far end of the return main, so there is no trouble with pipe sizes as far as the supply and return main are concerned.

This localizes the difficulty in the radiator or its runouts. If the runouts are correctly sized and properly pitched, then the difficulty must be in the radiator steam valve or the air valve.

In Fig. 2 is given another case to study. Here is a gravity hot water system in which the highest water temperature that can be raised in the boiler is 150 deg. Fahr. The radiators are not circulating badly considering the low temperature of water being supplied.

The difficulty appears to be located in the boiler or oil burner in this case. On looking up the radiation connected it is found to be 200 sq. ft., while the boiler rating is 350 sq. ft. As the 200 sq. ft. with 25 per cent added for piping comes only to 250 sq. ft., the boiler seems more than ample especially as the flue gas is only 400 deg. Fahr. The burner is only rated to burn ¼ gal. per hour of No. 2 oil at 139,000 Btu. per gal. This will produce, at a maximum, 139,000 × ¼ or 34,750 Btu. and if 70 per cent passes into the boiler water, then

34,750 Btu. × .70 equals 24,325 Btu.

whereas the load requires

250 sq ft. × 150 Btu. or 37,500 Btu.

Manifestly, the burner is too small.

Now, the third and last case shown will be discussed. The oil consumption on a 0 deg. Fahr. day is ¾ gal. per hr., and the load is 200 sq. ft. e.d.r. Smoke comes out of the chimney and this would indicate something wrong with the combustion, as it will be assumed that the radiators are all hot and there is 1 lb. of steam on the boiler.

If the burner is using No. 2 oil at about 139,000 Btu. per gal., the consumption should not exceed

200 sq. ft. plus 50 sq. ft. for piping or 250 sq. ft. e.d.r. and

250 × 250 equals 62,500 Btu. per hr.

while

62,500/.70 equals 89,285 Btu.

to be developed under the boiler. This should require

89,285 Btu./139,000 Btu. or 0.64 gal.

so that if 0.75 gal. are being burned, the wastage is

(0.75 minus 0.64)/0.64

or

0.11/0.64

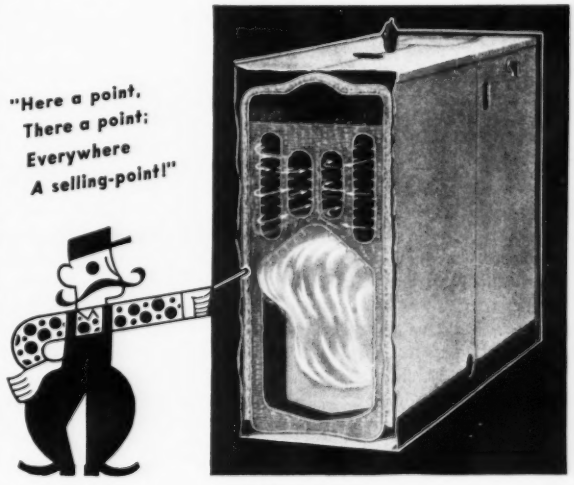
or

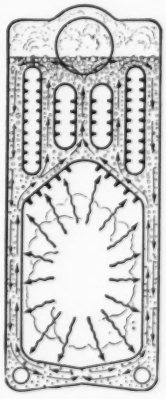
17 per cent loss.

The cause may be lack of air, insufficient combustion space, impingement or a carbonized burner tip. All must be checked over and the cause decided upon, after which means of correction can be applied.

8 BIG SALES-POINTS TO HELP YOU SELL KOHLER'S NEW "22" OIL BOILER

"Here a point,
There a point;
Everywhere
A selling-point!"





• In the Kohler "22," the completely water-surrounded fire-box absorbs *all* the radiant heat of the burner flame.

1 Completely water-surrounded fire-box—water absorbs all radiant heat of the burner flame.

2 Long fire travel—gases of combustion pass through the boiler *four* times.

3 Multiple heat-extracting fins.

4 Rear extended jacket, concealing oil burner, instruments, controls, water heater.

5 Built-in, all-year-round hot-water heater.

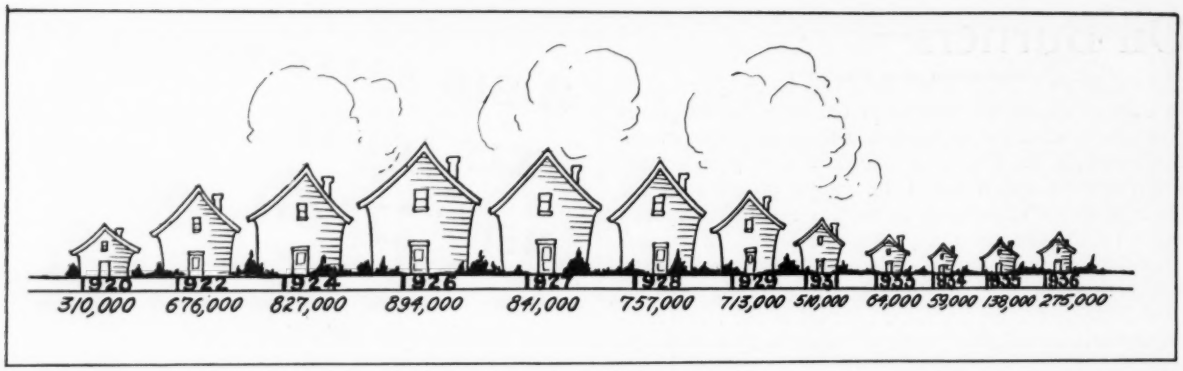
6 Large fire-box with greater heating area.

7 Thick blanket of heat-and-sound-insulating rock wool.

8 Heavy-gauge steel jacket finished with hard, durable baked enamel. Easy to clean. Soft green-and-black color combination.

Heating contractors say that Kohler's new "22" Oil Boiler is a top-notch salesmaker . . . that the eight important features listed above are only part of the story. Make 1937's Christmas the merriest ever. Find out more about the new "22." Then stock it. Write for free folder and complete information. Kohler Co. *Founded 1873.* Kohler, Wisconsin.

KOHLER OF KOHLER
PLANNED PLUMBING AND HEATING



Estimated number of family units upon which construction was started annually in urban and rural non-farm areas

The recommendation on building costs follows: "The impression has developed that building costs are unduly high. Analysis of building costs compared with costs of other necessities definitely disproves this contention. In many instances it discloses that under today's building costs, considering additional comforts and conveniences such as insulation, air-conditioning, electrical and plumbing requirements and the increased usability of space, the buying public are receiving more for the building dollar than they received before."

Speaking on the subject, "Why Build Now?", Bernard L. Johnson, editor of *American Builder*, presented figures to show that building prices are not unduly high. While the prices of most building materials are not so low as plumbing and heating equipment, he showed that the present price of a completed building represents excellent value. He said in part:

"Now, what is the situation today concerning home building costs? In terms of dollars the price, averaged, of all building materials increased during the past year from 88 per cent of the 1926 level up to 98 per cent of the 1926 level, an advance of 11 per cent. The total advance from the bargain low of the depression year 1932 has amounted to 36 per cent. However, if we price these building materials in terms of our principal farm commodities, which is the true way of appraising costs, we find that building materials today actually cost less than they did back in 1932!

"A bushel of wheat then bought 9 board feet of No. 1 yellow pine lumber; now it buys 20 feet. In 1932 it bought 60 pounds of portland cement; now it buys 164 pounds. Likewise, a bushel of corn in 1932 was exchangeable for 16 brick; today it rates 32 brick. A farmer who wanted to build a new barn sent a steer to market back in 1932, and each hundred pounds was worth 90 square feet of composition shingles; today this beef buys 340 square feet of shingles—almost four times as much. . .

"Builders are continually putting more equipment and better equipment, new devices, new aids to comfort and livability, improved construction practices, and materials into their homes. They are doing this today and have been doing it over the past decade without a comparable increase in the price of the finished house."

Taxation

The third principle follows: "A definite deterrent to residential construction has been the excessive share of taxation, local, state and federal, that real property bears. In a number of communities a major part of the total revenues are from assessments on real property. In some instances the relieving for a definite period of years, of the real estate tax on new construction has increased building activity with resultant adding to the eventual assessments."

John McC. Mowbray, chairman of the housing committee of the National Assn. of Real Estate Boards, made some illuminating statements on the tax loads borne by owners of real property.

"The Department of Commerce some four or five years ago estimated that if the annual value of all real property, both actual and estimated, were totaled, it would amount to about six billion dollars. If, on the other hand, you estimated the annual tax load of real estate throughout the nation, you would find that it reaches the staggering total of four and one-half billion dollars. Seventy-five per cent of all real estate income is needed to meet the requirements of the tax collector.

"These figures sound impossible, except for the fact that there exist in this country billions of dollars of real estate that produces no income but is taxed, nevertheless. The United States and Canada are the only nations in the world which attempt to tax real property which produces no income. Owners of real property receive approximately 12 per cent of the nation's annual income in the form of cash rents, or the equivalent from owner occupancy. Against this income, taxes are levied to pay for nearly half of the operating costs of local, state, and Federal governments. If this is used as a measuring stick, real estate taxes should be one-fourth of what they now are if real estate is to be treated as fairly as other invested wealth.

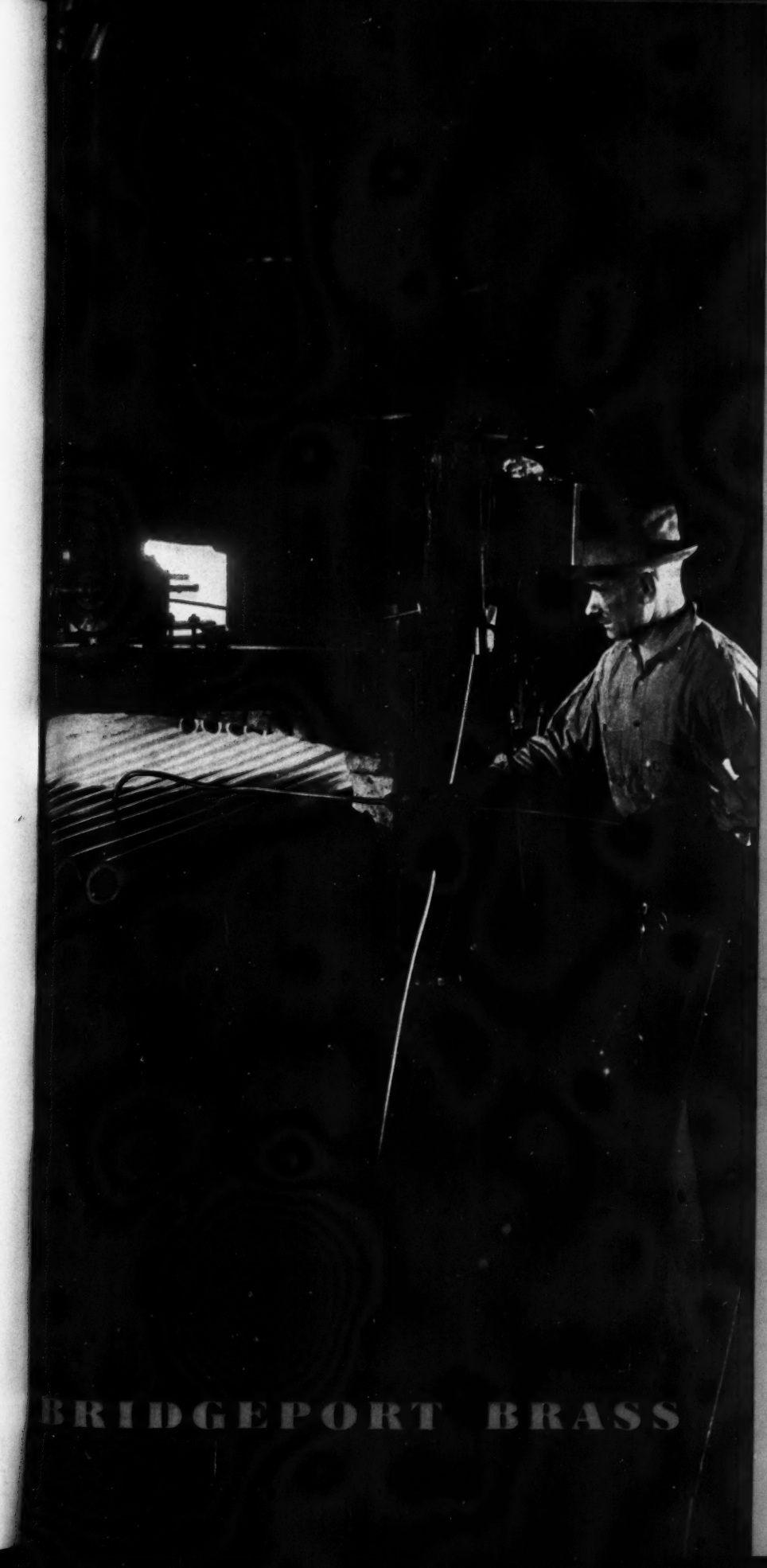
On building codes the committee reported: "In many communities the building industry is restricted in its operations because of archaic, obsolete and unreasonable building codes. This has added unnecessary expense to investors in construction.

"Your committee appeals to the individual building material manufacturers to arrive at a proper determination of code items. . . There has been a fundamental change in the philosophy of those interested in the development of building codes. The code of today as contrasted with the code of yesterday, is based upon principles, rather than on specifications. Your committee endorses the present activities being conducted under the American Standards Assn. procedure tending to produce a model building code."

Expressions on building codes were made by Walter R. McCornack, chairman of the housing committee of the American Institute of Architects. He said that 160 codes are twenty or more years old, 165 are from fifteen to twenty years old, 317 are from ten to fifteen years old, 620 are from five to ten years old, and 371 are less than five years of age.

He found that 204 plumbing codes are twenty or more years old, 130 from fifteen to twenty years old, 200 from ten to fifteen years old, 423 from five to ten years old, and 437 less than five years of age.

Figures used in the illustrations are taken from United States Chamber of Commerce statistics.



ANNEALED TO EXACTING SPECIFICATIONS

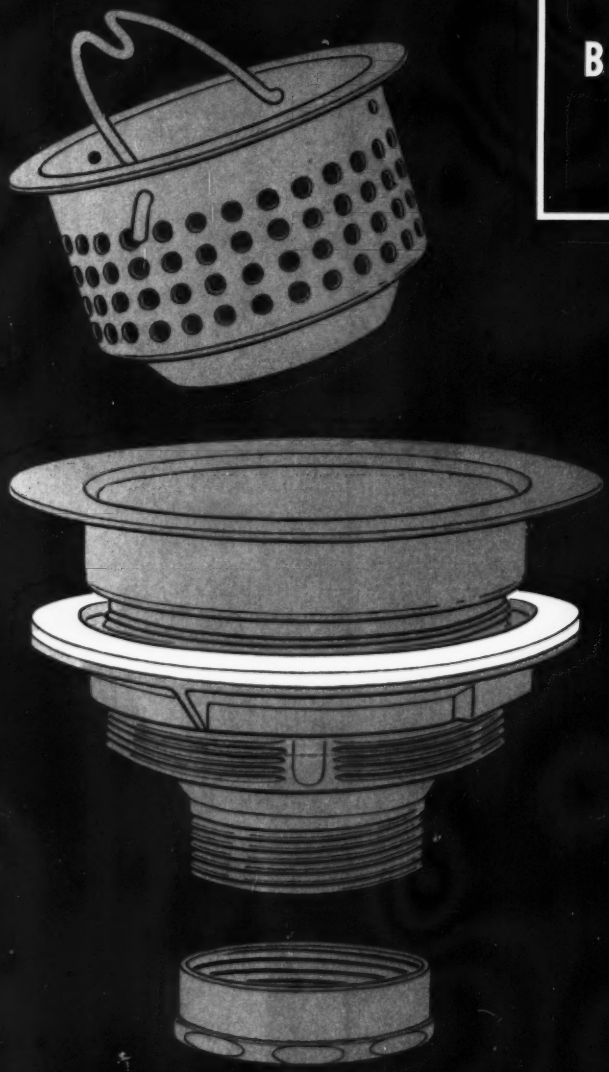
ANNEALING, no longer an art but a science, is performed under the careful supervision of our laboratories. However exacting your specifications for quality in brass or copper tubing, Bridgeport can meet them. Advanced craftsmanship plus modern facilities and a most rigid system of control and inspection are the basis of Bridgeport processing. We invite you to take full advantage of our metallurgical and chemical counsel in selecting pipe of the right mixture and temper to suit the local water and soil conditions.

"Bridgeport"

BRIDGEPORT BRASS COMPANY
Bridgeport, Conn. • Established 1865

COMPARE

The Faster-Selling Points of BRIDGEPORT'S PLUMBERS' BRASS GOODS



No. 666

No. 670

THE NEW LARGE BASKET TYPE SINK STRAINER*

A BRIDGEPORT item means an improved item; and improved items mean better business in plumbing goods. Note the unique features of the new large basket type sink strainer for modern sinks with large outlets.

It is typical of the entire Bridgeport line, which gives you products made to sell on their point-by-point superiority over merchandise now on the market. That's why we say "Compare!" Here are the points of superiority:

1. It opens or closes with a mere "flick" of the finger, positively, promptly, without manipulation or soiling the hand.

2. Extra depth, no knob, giving larger unrestricted capacity and exceptionally fast drainage.

3. Basket placed upside down in sink plug serves purpose of overflow when using running water for cleaning vegetables.

4. Equipped with heavy cast brass lock with ample wrench surface.

5. It is patented—with large basket type strainer designed for 3½" and 4" openings. Easy to install.

6. Packed in a strong carton, clearly and attractively labeled for quick reading.

It's not a Bridgeport strainer unless it operates with a flick of the finger.

Practical, clean, sure and positive in operation, heavily chrome-plated over nickel plate. A typical Bridgeport quality product.

FOR 2" TO 2½" OPENINGS: In addition to the large type, Bridgeport also offers the smaller type basket strainer for openings of 2" to 2½"*. This incorporates all the features of the large strainer and makes the Bridgeport line of strainers *complete* for every kitchen requirement.

*U. S. Pat. No. 2,038,852

BRIDGEPORT BRASS

BRIDGEPORT BRASS COMPANY • BRIDGEPORT, CONN. "Bridgeport" BRASS CO. ESTABLISHED 1865

Supply

News of Men . . . **Meetings . . .** **Companies . . .**

Air Conditioning Show

- *Three hundred exhibitors will be represented by displays at Fifth International Heating and Ventilating Exposition—American Society of Heating and Ventilating Engineers to meet concurrently*

Announcement has been made that practically all of the available exhibit space for the Fifth International Heating & Ventilating Exposition has already been taken by exhibitors. Some 300 companies will be represented by displays. The exposition will occupy three entire floors at Grand Central Palace in New York City. It will be held during the week of January 24 to 28. The American Society of Heating and Ventilating Engineers will conduct their Forty-fourth Annual Meeting in New York during the same week.

Boilers, burners and heating surfaces will constitute an important section of the exposition. Related to displays in this field will be those pertaining to radiation, and hot water heating. On display will be new, compact, automatic air conditioners which also supply homes with clean hot water continuously at low cost. The hot water arrangement utilizes the same burner that air conditions the home. For heating and air conditioning large buildings heavy duty automatic oil burners will be featured in terms of new devices to maintain uniform temperatures at varying loads and climatic conditions.

Coal, gas, and oil heating equipment will be characterized by many design refinements. In addition to the streamlining of cabinet enclosures, improvements will be directed toward more completely automatic operation in response to the outside weather; ease of operation, maintenance and cleaning; and fuel economy. One exhibitor will demonstrate the most improved types in a line of 66 models for domestic heating and air conditioning; likewise for industrial and commercial firing. Another oil burner exhibitor featuring "air stream turbulation" and "quick cut-off fuel hoarder" plans to show that these features make possible a guarantee of not less than 10 per cent CO_2 on every job and a service factor of less than 1 per cent.

A free stack pre-heater to be shown for the first time utilizes waste stack gases to make domestic hot water, without interfering with the draft, and providing 30 gal. at a 90 degree temperature rise in three hours with a 400 degree stack. Other items to be shown in this exhibit will include conversion oil burners, cast iron sectional boiler burner units, steel return tube boiler burner units, and an improved heating surface with steam distribution tubes. The aim of this surface is to maintain highly uniform air discharge temperatures over the entire face area with modulating steam valve control. Thus the possibility of frozen tubes is said to be prevented without the use of pre-heaters. The dual steam distributing tube feature will be offered as revolutionary in this type of design. Units will be operated to demonstrate the comparative results obtainable from the operation of heating surfaces with and without the distribution tubes.

Unit heaters and coolers, radiation surfaces, louvres, and grilles will constitute an important section of the exposition. Advance indications are that unit heaters and coolers will feature sturdy construction and attractiveness in design. One line of heaters is constructed so that inlets and outlets are located on the back and unsightly pipe traps and connections are hidden. A new V-type unit heater, operating with a single fan, provides two streams of heated air. This unit will be demonstrated in terms of its use in large spaces such as auditoriums and garages.

Air filters, fabricated entirely of metal and based on a multiple maze type of construction, will be on display. They will be shown in various sizes. Air cleaning efficiency with these units is claimed to be better than 99 per cent, with restriction less than ⅛ in. of water. The installation requires a negligible amount of space, even when capacities of thousands of cubic feet per minute are required. The all-metal filter element may also be especially constructed to circumvent air cleaning problems involving lint or other disturbing materials. Oil bath type air filters will also be demonstrated.

A.S.H.V.E. Auspices

Of especial interest to the householder will be one exhibit featuring year 'round air conditioning in conjunction with the other electrically operated devices characteristic of the modern home. The plan of the exhibit is "to symbolize a large scale program for the application of year 'round air conditioning and automatic heating to homes of average size."

Exhibits in other sections of the Fifth International Heating and Ventilating Exposition will include fans, blowers, boosters, and exhausters for the most varied applications, likewise the refrigeration and pumping machinery used in air conditioning. Metals and alloys will be represented in the displays of piping, ducts, conduits, and valves, and their application will be further reflected in terms of cabinets housing the various units. Plant equipment and accessories will be the theme of many exhibits, as will thermal insulation and electrical machinery. Reflecting a trend which is characteristic in all fields of the exposition—completely automatic operation under constant adjustment and control—the subject of instruments and controls will be featured by a number of exhibitors.

The exposition is being held under the auspices of the American Society of Heating and Ventilating Engineers.

Bureau Finance

● *M. J. Beirn named to head finance committee of Plumbing and Heating Industries Bureau—Committeemen appointed*

Wm. M. Byrd, Jr., president of the Plumbing and Heating Industries Bureau, has announced the appointment of the 1938 finance committee. M. J. Beirn, vice president and general manager of sales of the American Radiator and Standard Sanitary Corporation, is chairman of the committee.

Members of the committee include Wm. A. Brecht of Philadelphia, Pa., president of the Hajoca Corporation and president of the Southern Wholesalers Assn; C. A. Dunlay of Houston, Texas, president of Dunlay-Armand Company and president of the Wholesale Distributors Assn. of Texas; Walter J. Kohler, chairman of the Board of the Kohler Co.; L. J. Kruse of Oakland, Calif., president of the National Assn. of Master Plumbers; P. R. Mork of Chicago, vice president of Crane Co.; H. O. Nelson of Detroit, Mich., president and general manager of the Nelson Company and past president of the Central Supply Assn.; H. M. Porter of Minneapolis, Minn., president of the Heating, Piping, and Air Conditioning Contractors National Assn.; and Walter H. Wiegal of Pittsburgh, manager of sales, Jones & Laughlin Steel Corp.

"I am particularly pleased to announce that Joe Beirn has accepted the chairmanship," said Mr. Byrd. "Mr. Beirn is well known throughout the industry. In fact, I know of no man who has a wider acquaintance. Joe Beirn is known everywhere as a man who finishes whatever he starts.

"Strong as the committee is, and representative of all groups, these men need the cooperation of everyone in the industry. Since the activities of the Bureau benefit everyone who has a stake in this business, the responsibility for financing should be accepted generally and not left entirely to the committee."

M. J. Beirn

Mr. Beirn in a statement voiced the same point of view when he said that the Bureau in the past has been underfinanced because of a general disposition to "let George do it."

"Too often an activity such as that carried on by the Bureau," said Mr. Beirn, "is accepted as a matter of course. When it comes to providing financial support, there is a disposition to let George do it.

"The members of the Finance Committee are all busy men. The committee, too, might be tempted to let George take care of the Bureau's 1938 financing. But I think I can speak for every man on the committee when I say that we think the Bureau's work is very important to the industry.

"It is my own opinion that there never was a time in the history of the industry when constructive publicity was more needed than it is today."

Open New Showroom

The new Charlotte, N. C., display rooms, offices, stock rooms and warehouse of Hajoca Corporation were opened formally on November 8. Showroom open house was held during the entire week.

Plumbing and heating equipment are spotted in ensembles to give a domestic atmosphere so that the visitors can easily visualize the installed products in their own homes.

The company has maintained a showroom in Charlotte since 1922. H. E. McFarlin has been manager of the branch since 1934.

New Company

Crew-Sargent Controls, Inc., has been organized by M. W. Crew, formerly president of Crew-Taylor Engineering Corp., to take over the business of the latter organization. The company specializes in combustion controls and in draft and pressure indicators. Mr. Crew was at one time manager of the stoker unit department of the Combustion Engineering Corp. His new associate, Edwin Sargent, is connected with the Sargent Building Specialties Co. of New York. Offices of Crew-Sargent Controls, Inc. are at 101 Park Ave., New York City.

Raub Meeting

The immediate future holds business prospects far beyond anything that has been experienced in the past year, W. S. Raub, president of the Raub Supply Co., told members of the sales executive staff of the company at a convention in the Penn-Harris Hotel, Harrisburg, Pa., last month.

G. H. Hartman, vice president and sales manager, presided at the meeting, which was opened with a luncheon for officials and sales staff. More than 50 persons attended.

Following the convention meeting at the hotel, the sales group inspected the newly remodeled showrooms and office of the company at 29-47 S. 10th St. The entire front of the building has been remodeled to provide a showroom for refrigerators, radios, washing machines and other electrical appliances at the north side of the front, with the offices and plumbing and heating equipment display rooms occupying the south side.

Following the inspection by the sales staff, an exhibition was held for electrical appliance dealers of the Harrisburg area.

Sales Meetings

Insulation division of the Standard Lime and Stone Company, Baltimore, Md., has just completed a series of merchandising meetings in sixteen cities. The meetings were attended by officials, sales managers and salesmen of the various dealer organizations. Oliver P. Harris, sales manager of the division, directed the meetings, assisted by District Representatives J. M. Daffron, R. C. Powell, C. L. Reier, C. A. Hechter, A. M. Norton, E. E. Kresge and G. O. Rovick.

Public Relationships

Lewis H. Brown, president of Johns-Manville Corp., told the members of the Association of National Advertisers at their recent convention that American business faces important problems which can be solved only by making friends for industry and developing sound policies of public relations.

Private industry's progress would be retarded if there should be a failure in cultivating the confidence and friendship of the public, he said. "Business is looking for the right further to serve and grow and achieve. A proper relationship with government and government with business; a clear understanding by the people of the functions of business so that business can do more for the people—provide a higher standard of living, better wages, a richer and a fuller life."

THEY MUST BE RIGHT

● Away back underneath the popular success of Dole Valves is one little "difference" about them—a simple thing that may explain why it pays so well to carry them.

As a line, Dole Valves were designed from the start *both to serve and to sell.*

Hundreds of items do a good enough job once they get *on the job,* but nothing constructive has been done to make the selling easier for the dealer*.

Still other products have the flash that sells, but not the underlying quality that delivers real performance.

BUT . . . from BOTH the merchandising and the mechanical standpoint, the Dole Valve Company *insists on plus values* at every stage of design, engineering, purchase of materials, fabrication, plating, packaging, advertising, sales policy, jobber-dealer profit-margins and delivery . . . Right down the line.

They can't miss. They must not miss. That's company policy.

Ask a jobber or dealer what line of valves sells strongest and stays sold longest. It is Dole.

Because, they are right! . . . because they MUST be right.

THE DOLE VALVE COMPANY
1901-1941 Carroll Avenue, Chicago, Illinois

DOLE

AIR AND VACUUM VALVES

Dole The Line of Least Sales Resistance

**In addition to the attraction of brilliant prize-winning packaging Dole Valves are regularly advertised to more than a million and a half home owners and large users.*

Coal Meeting

Five hundred attended the showing of the motion picture, "Green Lights Ahead," at the Coal Club of Philadelphia meeting on November 16. A. F. H. Scott and James P. Duffy of Anthracite Industries, Inc., spoke. Pres. Charles S. Chestnut, Vice Pres. Crawford C. Madeira, and Secretary and Treasurer Amos R. Bauman of the Coal Club, also talked at the meeting.

Jobbers Dance

Each year the Jobbers Credit Assn. holds its annual dinner dance in New York City, falling this year on November 6. It brings together a large number of wholesalers and other members of the industry. This year's event was the twelfth annual one and attracted the largest crowd ever attending.

The occasion was given over entirely to entertainment furnished by an outstanding group of Broadway talent.

In charge of this year's dinner dance was a special committee made up of Milton M. Goldsmith, Sam S. Glauber, Inc., chairman; Morris Abramowitz, Daniel-Morris Co., Inc.; E. E. Basch, Regent Plumbers Supply Co., Inc.; A. M. Behrer, Behrer-Nason Co., Inc.; Paul R. Berryman, Crane Co.; T. W. Bieder, Westchester Square Plumbing Supply Co.; Elmer Doolittle, Central Plumbers Supply Co.; Julius Klein, New York Plumbers' Specialties Co., Inc.; Frank Michael, Michael & Goldberg Plumbing & Heating Supply Co., Inc.; Leo M. O'Neil, M. O'Neil Supply Co., Inc.; T. W. Powers, Asco Supply Co., Inc.; E. Schwartz, E. Schwartz Plumbing Supply Co., Inc.; Mortimer H. Smolka, E. Smolka Plumbing Supply Co.; Robert Smolka, Sam S. Glauber, Inc.; Michael Weinsier, Saltser & Weinsier, Inc.

Smoke Pollution

Speaking on "Air Pollution and its Relation to Community Health," before the Hudson County, N. J., Smoke Abatement Assn. at Stevens Institute of Technology November 18, H. C. Murphy, of Louisville, Ky., chairman of the committee on air cleaning of the American Society of Heating and Ventilating Engineers, declared that the smoke nuisance in large cities is a contributing factor in the spread of disease from air-borne bacteria held in suspension on smoke and dust particles in the atmosphere.

"We are jeopardizing both the health of our citizens and the productivity of our countrysides by disregarding even our present half-hearted smoke abatement laws," Mr. Murphy said. "Winter health conditions in our larger cities," he continued, "are getting steadily worse. We are paying the price for industrialism running wild. The dust which infects our cities is becoming daily more objectionable and more distinctly a menace to life."

Describing recent research at the Harvard School of Public Health indicating that germ-carrying droplets ejected when people cough, sneeze or talk remain in suspension for days, Mr. Murphy said that the latest study of air-borne bacteria was leading scientists to think that certain respiratory disease germs were becoming adapted to air transmission.

He traced the relationship between atmospheric pollution and decreased sunlight in large industrial centers, citing ten large cities which, in a period of ten years according to U. S. Weather Bureau reports, had suffered an average decrease in sunshine of from 6 per cent to 17 per cent during the Winter months.

Welding

About 400 watched a demonstration of non-ferrous welding at the Whitehead Metal Products Co. of New York, Inc., Philadelphia headquarters on November 5 and 6. The International Nickel Co., Inc., Aluminum Company of America, The American Brass Co., Handy and Harman, Air Reduction Sales Co. and Linde Air Products Co. participated in the demonstration. Among those present were Joseph Smith, manager of the Whitehead Philadelphia organization; O. B. J. Frazer, development and research division of International Nickel, Fred Shull, in charge of warehouses for Aluminum Company of America; Clayton Grover, of the technical department of Whitehead; and Samuel Bushnell, manager of the Aluminum Company of America, Philadelphia office. Sandwiches and other refreshments were served after the demonstrations on both days.

Armco Improvements

An appropriation of $2,000,000 has been made to improve the Middletown, Ohio, plant of The American Rolling Mill Company, according to an announcement by Calvin Verity, executive vice president.

Open hearth practice will be improved; an additional soaking pit will be provided; the blooming mill will be motorized; a number of improvements are being made on the hot strip mill; additional annealing capacity will be provided.

The entire program, Mr. Verity said, is for the purpose of rounding out existing production facilities and increasing the efficiency of the various units. Other improvements may be announced later, he said.

Some of those present at annual dinner and dance of Jobbers Credit Assn. of New York

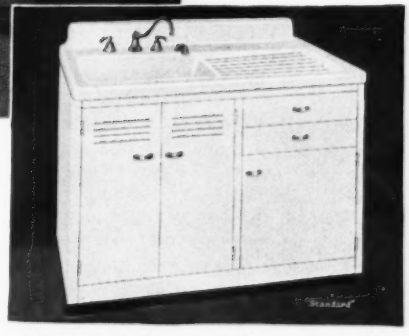
HELPFUL HUSBANDS....

Hostess P6535, Cabinet No. 20.

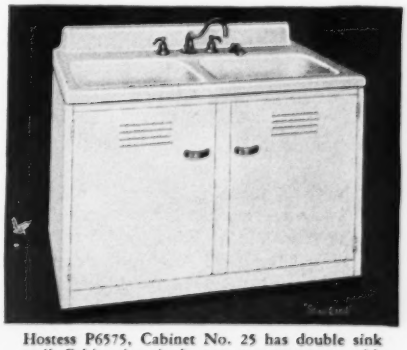
like the new "Standard" HOSTESS SINK

AMONG your customers are many men interested in making their wives' housework as easy as possible. They'll want to know about the "Standard" HOSTESS SINK and its many work-saving features—the handy storage space . . . the 8" deep sink well which quickly becomes a dishpan . . . the handy yet out of the way spray hose . . . the swinging spout . . . the convenient shelf.

Tell them, too, how the "Standard" HOSTESS SINK fits with other standardized wall cabinets. It is now available in four popular models in either white or attractive colors. Feature the "Standard" HOSTESS SINK for Fall and Winter sales. For further information, see your "Standard" Wholesale Distributor.



Hostess P6552, Cabinet No. 23; sink on left (also available as Hostess P6550, Cabinet No. 22; sink on right). Has one large compartment, two drawers and a smaller compartment.



Hostess P6575, Cabinet No. 25 has double sink well. Cabinet is a single storage compartment with two doors. All sinks are 36" from floor to rim.

Standard Sanitary Mfg. Co.

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

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Southern Wholesalers

● *Business prospects for 1938 and low cost housing attract most of the attention at the November 12 meeting of Southern Wholesalers Assn.*

Business conditions now and prospects for 1938, and the Federal housing program were two subjects most considered at the November 12 meeting of the Southern Wholesalers Assn.

Under the heading, "The Outlook for Business for the Next Six Months," F. C. Bickers, James Supply Co., Chattanooga, Tenn., analyzed the business outlook and discussed the comments of prominent economists. He was of the opinion that the present recession is a temporary matter and that 1938 will offer wholesalers and other divisions of the industry an opportunity for good business and fair profits.

The following manufacturers also spoke on this subject, giving their viewpoints and those of their companies: C. E. Wilkinson, district manager, Kohler Co.; A. M. Maddock, vice president, Standard Sanitary Mfg. Co.; J. H. Scanlon, assistant manager of sales, Bethlehem Steel Co.; G. W. Christopher, assistant manager of sales, Youngstown Sheet & Tube Co.; W. J. McKee, general sales manager, National Tube Co.; Walker Reynolds, vice president, Alabama Pipe Co.; William B. Neal, vice president, Somerville Iron Works; G. P. Cartwright, vice president, Thos. Devlin Mfg. Co.; William E. Austin, vice president, National Radiator Corp.

These men reviewed prospects and possible price trends for their individual industries. The consensus was that 1938 is going to be a profitable year, and all look for considerable increased demand, at least by the late Spring. The talks also brought out the fact that no contemplated price declines are in evidence; but on the contrary the prices of some commodities now selling at low levels may have to be increased.

Highlights

Some of the highlights gathered from the various talks were: "Business has a case of the 'jitters' at present, but the condition is only temporary. . ." "The Washington outlook is considerably better. . ." "There will be a definite improvement in the building industry in the Spring." "In modernization, we have a market for our products whose possibilities have only yet been partly cultivated. . ." "We are fortunately associated in a business which is destined to assume, in the next few years, proportions in sales volume far in excess of any we have witnessed for the past eight years. . ."

"What the New Housing Bill Means to Your Business" was discussed by C. F. Palmer, president of Palmer, Inc., and an authority on housing. He outlined briefly the provisions of the Federal Housing Act of 1937 making it possible for various states and communities to set up housing authorities to qualify for the government subsidies on slum clearance. He called attention to the fact that through this Federal Housing Act there is provided an opportunity for this industry and other divisions of the construction industry to sell products to a class of society who could not otherwise purchase them. In his opinion, no other single movement can do as much for the capital goods industry as a well set up plan for slum clearance.

Experience in other countries that are farther advanced in low cost housing than we are definitely show, according to Mr. Palmer, that government subsidized construction has inspired increased private construction rather than decreased it.

Other speakers at the convention were: W. J. Spillane, James B. Clow & Sons Co.; M. T. Kain, Plumbing and Heating Supply Co.; C. B. Wilson, Horne-Wilson, Inc.

New Laboratories

More than 200 scientists from all parts of the country were guests of The American Rolling Mill Company at the dedication of that company's new research laboratories in Middletown, Ohio, on November 5.

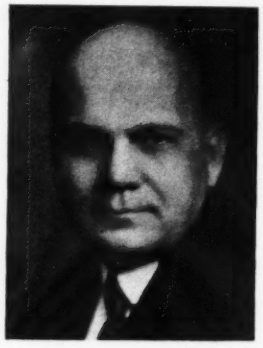
"Research is what keeps industry healthily dissatisfied with itself," was the keynote of the dedicatory address by Charles F. Kettering, vice-president in charge of research of General Motors Corporation, at the banquet that concluded the day's activities.

George M. Verity, chairman of the board of American Rolling Mill Company, told his audience that "from the courage and brains of men who have refused to accept today's products as representative of 'perfection' has come the impetus that has given us the highest standard of living known in the world, and which has provided profitable investment for savings of the nation, and work and more abundant opportunities for millions of men."

Charles R. Hook, president, declared "the real goal of industry is to find new products for old and new uses."

New Crane Division

Formation of a division of engineering and research by Crane Co., Chicago, with L. W. Wallace, former head of engineering research for the Assn. of American Railroads, as director, effective December 1, has been announced by Charles B. Nolte, president. The new division will comprise the existing division of research and development and the product engineering department of the company.



L. W. Wallace

"The new division has been formed to coordinate all engineering activities of the company," said Mr. Nolte, "and to further its progress in diversified fields. The importance and growth of this technical work have proven the advisability of maintaining a complete and well-staffed engineering division, free from all responsibilities except those relating to engineering, research, design and experimental work."

Mr. Wallace will direct the originating of new lines of products, the development of inventions and patents and the maintenance and improvement of existing products. The enlargement of the laboratories and the installation of new laboratory equipment are about completed, having been in progress for some time.

J-M Movie Showing

Two hundred plumbing and heating contractors of Philadelphia, Pa., and vicinity saw the November 12 showing of the Johns-Manville motion picture, "Heat and its Control," at the Broadwood Hotel.

J. M. Watt, of the Philadelphia office of the company, opened the meeting. L. C. Leslie, also of the local office, spoke on advertising. Thomas Nicely explained the products of his company. Also present were executives J. C. Schmidt, G. V. Dutney and C. C. Simoni.

Refreshments were served following the meeting.

New Distributors

Sales Representatives, Appointments

Homestead Valve Manufacturing Co., Inc., Coraopolis, Pa., has announced the following new distributors: Charles A. Randorf, Buffalo, N. Y.; Beeler-Mac-Williams, Inc., Syracuse, N. Y.; W. E. Mushet Co., Portland, Ore.; Clowe and Cowan, Inc., Amarillo, Texas; Paul R. Winston Co., Dallas, Texas; Waterworks Equipment Co., Salt Lake City, Utah; Tazewell Buchanan, Richmond, Va.

Emerson Electric Co., St. Louis, Mo., has announced the appointment of Clarence Wittmer as national service manager.

Ward and Holloway Agency, Philadelphia, Pa., has moved to new office and showroom at 1309 Arch St.

The Lincoln Electric Company, Cleveland, Ohio, has announced the opening of a new sales office in Phoenix, Ariz., to be in charge of R. J. Reardon. Vice Pres. A. F. Davis made the announcement.

Kelvinator Division, Nash-Kelvinator Corp., has announced the opening of a new factory branch, headed by J. L. Conover, at 2451 S. Michigan Ave., Chicago.

Link-Belt Company, Chicago, has announced the following appointments: Harold L. Hoefman as manager of the plant warehouse and sales office at Atlanta, Ga., to succeed I. H. Barbee, who died November 4; George A. Paige as manager of the warehouse and sales office in Detroit, Mich.; Laurance O. Millard as district sales manager at Pittsburgh, Pa.; Paul V. Wheeler as district sales manager at Cleveland, Ohio.

Personals

James O'Connor has joined the sales organization of Tomlinson Co., Inc., with his headquarters in Philadelphia. A. A. Tomlinson, president, made the announcement.

Walter L. Upson, professor of electrical engineering in Washington University, St. Louis, will assume charge of research for the Torrington Manufacturing Co., Torrington, Conn., on January 1, it has been announced.

F. Gladden Searle, Bronxville, N. Y., has been elected to the board of directors of Worthington Pump and Machinery Corporation, Harrison, N. J.

W. H. Stangle

William Hull Stangle has been named to direct the recently announced home air conditioning activities of the Westinghouse Electric & Manufacturing Company, according to P. Y. Danley, manager of the refrigeration and air conditioning department.

Frederick M. Jackson, who has been handling sales for the Walworth Co. in the East for some years, with headquarters in Washington, has been appointed eastern division sales manager with headquarters in Boston. He succeeds Walter E. Stevens, who died recently.

R. L. Firkins has been named stoker division sales manager for eastern territory by Link-Belt Co., according to an announcement by J. E. Martin, manager of the stoker division. His headquarters will be in Philadelphia.

Murray B. Wilson, associated with Armco since 1923, has been named manager of the New York sales district of The American Rolling Mill Company, Middletown, Ohio.

Walter Monroe, Jr., Allen Bldg., Dallas, Texas, has been appointed sales representative for Texas, Oklahoma and Arkansas for The Royal Brass Mfg. Co., Cleveland, Ohio.

Thomas C. Shwab, 249 E. 43 St., New York City, has been appointed representative in the metropolitan area by Lehman Sprayshield Co., Philadelphia, Pa.

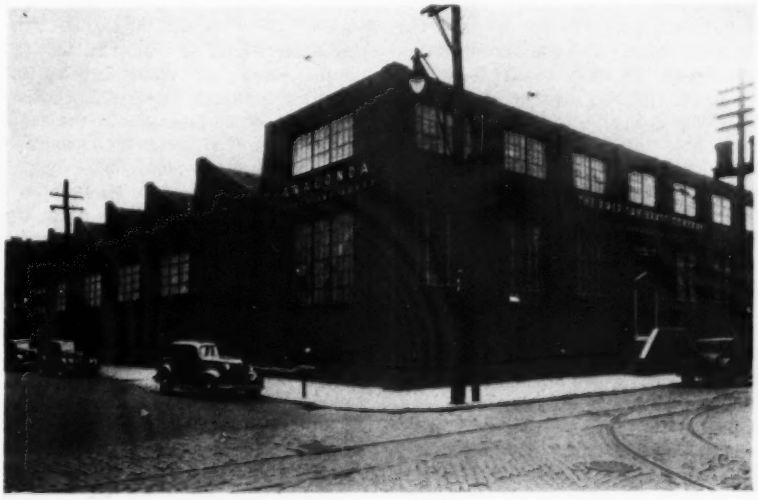
W. C. Flanders has been appointed sales manager of The Worthington-Gamon Meter Co., Harrison, N. J. He has been associated with the company fifteen years.

Business Changes and New Incorporations

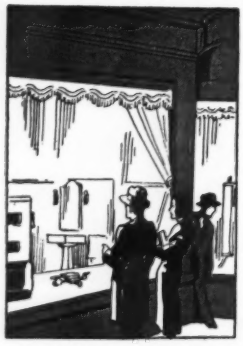
Economy Pumps, Inc., formerly economy Pumping Machinery Co., now has general offices at 2522 W. Congress St., Chicago. The factory and engineering department are located at 1000 Weller Ave., Hamilton, Ohio.

The All Metal Valve and Faucet Sales Co., Inc., has been chartered in Seattle, Wash., by Robert P. Manley, Grover C. Turnipseed and A. A. Williamson.

The American Brass Company of Pennsylvania has acquired the property at W. Norris, Howard and Hope Sts., Philadelphia, consisting of a one story warehouse and a two and one-half story office building. The present Philadelphia offices of the agents of The American Brass Company at 117 S. 17th St. will be located in the new building. James H. Larmett will be manager of the new office and warehouse.



New American Brass Co. of Pennsylvania building



Trade

News of . . . Men . . . Associations . . . Events . .

N. A. M. P. Board Meets

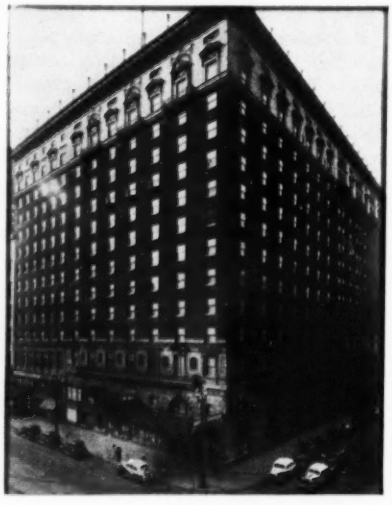
- *Research, complaints under the Robinson-Patman Act, and a plan of action for local associations are principal topics at meeting of N.A.M.P. Board of Directors*

Continuation of research for the years 1937-1938; authorization to publish the final research report for the past year; action on complaints under the Robinson-Patman Act, and the approval of a "Plan of Action for Local Associations" were the high lights of the N.A.M.P. board meeting, held in Cleveland, Ohio, November 1 and 2, 1937.

The following members were present: L. J. Kruse (chairman), H. M. Porter, Loy F. Johnston, H. O. Green, Philip S. Bailey, Walter E. Eynon, George W. Frank, Thomas F. Hanley, Jr., Howard L. Hopkins, Edward Monteath, Freeman P. Moss, William A. Schneider, Felix Wahrmund and George H. Werner.

After listening to the preliminary report of the research committee, as presented by Chairman William J. Lang, and receiving an oral report from F. M. Dawson, dean of the College of Engineering, State University of Iowa, the board authorized an appropriation for research, on an increased basis, for the balance of the present administration. The board also considered the question of the establishment of a testing program, and authorized proceeding with the preliminaries of this activity. It was emphasized that research and testing should be kept separate and distinct, and separate budgets were established and authorized for the respective activities.

This view was taken in consideration of the fact that certain manufacturers' organizations, and one individual manufacturer, had contributed financially to the research program, which terminated October 15 of this year. It was also felt by the board that a continuance of manufacturers' support for pure research should be solicited. On the other hand, it was realized that testing would not likely develop into activities in which direct financial support from other interests in the industries could be properly encouraged under the present plan.



The Statler, an official hotel for N.A.M.P. Convention in Cleveland

The final report of F. M. Dawson of the year's work at the Iowa State University was presented to the board of directors and, in their opinion, constitutes a major contribution to the art and science of plumbing. The report, which consists of about 29,000 words, with accompanying diagrams and charts, consists of two parts, (1) a summary of the conclusions reached and (2) the details of procedures and methods used in reaching the conclusions. The board authorized the immediate reproduction of 50 copies of the report for distribution, by the research committee, to the individual members of the board of directors and to the manufacturing groups and individuals who cooperated financially in support of the current research program, for their study and comment.

It is hoped that the cooperating manufacturers will concur in the desire of the board of directors to print the program in attractive format and aid in its distribution to health authorities, engineering societies and individuals concerned with the design of plumbing equipment and systems and with the preservation of the purity of water supplies and public health. The printing of the preliminary copies of the report is already in progress and it is hoped that it will be available to the industry shortly.

Robinson-Patman Act

The program of research for the coming year is a realistic continuation of the work so successfully brought to a conclusion on October 15. It is believed by the board that this research activity will enhance the prestige of master plumbers among those groups with primarily a scientific or technical cast of mind.

The complaints received from constituent bodies and individuals under the Robinson-Patman Act were considered and dealt with by the board in the manner prescribed by counsel. It is the board's understanding that the Federal Trade Commission is now in the process of investigating work in the plumbing industry, although the customary secrecy surrounds their efforts, and publicity of their efforts cannot be given at this time.

The board wished it emphasized that persons or organizations who file complaints with the N.A.M.P. will have their anonymity preserved. The name of the person filing the complaint will not be revealed to anyone. In the opinion of the board, based on the complaints already filed and on the oral reports of members of the board, there is still much room for the filing of com-

plaints under the Act in which the master plumber places so much hope. It is the belief of the board that more complaints would give the Federal Trade Commission an even more intense interest in the correction of discriminatory practices than now characterizes their splendid efforts.

The details of the 1938 Home Comfort Exposition were considered by the board and, in view of the large amount of space already under reservation, the opinion was expressed that the Cleveland Convention and Exposition will be an outstanding one in the annals of the association.

Wisconsin Situation

The board of directors considered all of the aspects of the controversy existing in the state of Wisconsin with respect to encroachments, by outside interests, on the work prescribed as plumbing under existing state law. With the cooperation of the United Association and the labor committee, under the chairmanship of Henry P. Reger, it is believed that this controversy can be satisfactorily settled. A meeting to discuss this subject has been scheduled for November 15, 1937.

President L. J. Kruse presented to the board of directors a detailed bulletin entitled "A Plan of Action for Local Associations." This plan is a practical one, based on experiences in the state of California, and is designed primarily to give local associations a tried and tested program for the financial benefit of the membership. This plan has been tried with astonishing results, and the board of directors were so impressed with President Kruse's plan, that they ordered its distribution generally among constituent associations after certain legal aspects have been passed upon by the association's counsel. It was the board's belief that this plan would further intensify the interest in membership building by local and state associations now being exerted in many sections of the country. In fact, it is confidently hoped that the membership figure for the N.A.M.P., at the time of the Cleveland Convention, will exceed the total of many years past.

All of the resolutions referred to the incoming administration by the 55th Annual Convention were disposed of by the board of directors in an appropriate manner.

It was voted to continue the financial support of the Plumbing and Heating Industries Bureau and the approval of the bureau's efforts was generally expressed by the board collectively and by individual members.

Following the wishes of the 55th Annual Convention, an honorarium was presented to Past President Werner and he expressed his thanks to the membership at large for this continued recognition of his many years of service to the association.

The finances of the association were analytically discussed, and approval expressed of the strong position in which the association, fortunately, finds itself. Some expansion of the publication and supplies division's activities was authorized to take care of the increasing demand for the materials published by the N.A.M.P.

Particular interest was shown by the board of directors in the work of the standing committees and comments on their work indicated the favorable regard in which the standing committees are held. Each one of the committees is actively engaged in the work assigned to it; the work of the research committee being an outstanding evidence of planned effort.

All of the official acts of the officers of the association were ratified, and the board adjourned after a busy two days' session.

The Hotel Cleveland, headquarters hotel for N.A.M.P. Convention

Sioux Falls Elects

The Master Plumbers Assn. of Sioux Falls, S. D., recently elected George Carlstrom president, and Walter E. Abraham secretary and treasurer. Peter Aistrup, M. R. Waterbury and C. O. Garver were appointed to serve the first quarter term on the revolving advisory board. C. E. Carlson, Walter Abraham and Clifford F. Smith were appointed to serve on a trade relations committee.

Penfrase Talks

The plumber was characterized as one of the greatest protectors of human life by Edward L. Penfrase, former national secretary of N.A.M.P., in an address November 10 at the Statler Hotel, Buffalo, N. Y. The meeting, sponsored by the Buffalo association, was attended by plumbers, steamfitters, health officials, architects, engineers and others.

The object of the meeting was to promote the cause of sanitation. Motion pictures were used to show the result of mixing pure and contaminated water. The elimination of cross connections and back siphonage conditions was shown graphically.

Referring to the amebic dysentery epidemic in Chicago during the world's fair, Mr. Penfrase asserted that the people of Buffalo need have no fear of such an epidemic, since the passage of an up-to-date plumbing code. "Buffalo is receiving the purest water possible," said he, "because health authorities constantly test the water until it reaches the building curb line. And then the responsibility lies with the plumber. . . Contamination can result within the building through defective plumbing. . . Cross connections cause pollution."

Dr. Francis Fronczak, health commissioner, declared that his department is taking every precaution to see that cross connections are not used. He cited the dangers resulting from old plumbing equipment, and called upon plumbers to install only the best equipment.

Testing Laboratory

● *Interim report of N.A.M.P. research committee recommends set up and functions of testing laboratory for the association—Board of Directors approves plan*

Following is the interim report of the research committee presented to the N.A.M.P. Board of Directors and approved by them at their November 1 and 2 meeting in Cleveland, Ohio. The report recommends the establishment of an official N.A.M.P. testing laboratory. The board of directors authorized proceeding with the preliminary phases of this activity. The committee is composed of William J. Lang, chairman, John B. Hawley and A. L. McGonegal. The report follows:

The following preliminary report of the research committee is submitted for the consideration of the board of directors as a suggestion worthy of their consideration in connection with the question of research generally. The suggestion is not entirely new, as a similar plan was presented several years ago. At the time a similar plan was considered, general conditions would not permit its adoption. It is believed by members of the research committee that conditions have sufficiently changed, since the time of its previous consideration, to warrant the board of directors' careful study of the plan.

It must be borne in mind by the board of directors that it is not the intention of the research committee to recommend this plan to the exclusion of any other activity along research lines. On the contrary, the research committee considers the following plan merely a part of a broader plan, comprehending the other phases of research on which such a splendid start has been made during the past ten months. So, in considering the following material, it should be borne in mind that it is not the intention of the research committee to even suggest that other phases of research activity be discontinued.

Information Needed

As the plumbing industry is now constituted, master plumbers have no central point to which they may address inquiries as to the suitability or unsuitability of the materials they use in the daily conduct of their business. Under present conditions, master plumbers must turn to the manufacturers of these materials for such information as they are willing to give. Quite obviously, the manufacturer of an article looks upon its material, design and suitability with indulgence. It is true that many materials, simple in their nature, can be gauged by the practical experience of master plumbers as to their suitability or unsuitability for the work they are supposed to perform. But, there are other materials which, due to the complexity of their construction, or to other inherent obstacles, prevent the master plumber from judging as to their suitability or unsuitability.

In the opinion of the research committee, the master plumber has a very definite responsibility in the preservation of public health. As the last point of contact with the ultimate consumer, the master plumber must bear the brunt of public criticism if the materials he installs, and the way he installs the materials, results in anything less than complete consumer satisfaction and complete consumer protection. Unless the master plumber has a means of assuring himself that the materials he uses, and the way he installs them, are correct, he must rely on the unsupported word of the men who make the materials and devise the method of their installation. If disaster results, the manufacturer of the materials suffers none of the criticism, and it is borne solely by the master plumbers.

Control of Testing

It is the belief of the research committee that the master plumber should establish ways and means of controlling the testing of the materials we sell and install, and to establish ways and means of disseminating the findings resulting from such testing among the ranks of master plumbers generally. You will readily observe the emphasis on the use of the word "control." Anything short of complete control of the testing processes by master plumbers, or their qualified agents, would not, in our opinion, permit us to completely shoulder the responsibility for the protection of public health. The testing of materials, and the dissemination of information resulting from such test, must be done under the control of master plumbers, free from the very natural bias which would come were any part of the processes under the direct or indirect control of the producers.

Our object is to place the master plumber in a position of knowledge as to the materials he uses. We want master plumbers to know what materials can be sold with confidence that ultimate consumer satisfaction will result. We want master plumbers to know what materials will perform certain specific services. We wants master plumbers to know that the materials they use are not misrepresented, either in their sale to master plumbers or in the advertising to consumers, which arouses consumer preferences. In short, we want master plumbers to prescribe materials, and their methods of installation with the same care to meet a given situation as is used by a physician in prescribing a medicament.

It is because the medical profession was confronted with a difficulty similar to ours, and because the medical profession has established a means of overcoming that difficulty, that the research committee has turned to the plan and procedure of the American Medical Assn., and its Council on Physical Therapy, as a guide in the development of the plan which follows. It may be stated that the American Medical Assn. has followed a similar plan for a number of years, and following the plan has resulted in the elimination from the field of medicine, many medicines, drugs, chemicals and processes which were formerly used quite generally, but which were found, through the operation of the plan, to be deleterious to the public health. The research committee looks forward to a similar elimination from use of many devices and materials now generally used in the plumbing industry, which, it is our considered belief, are deleterious to public health.

It is proposed that a "Council on Safety and Protection of Public Health of the N.A.M.P." be formed, consisting of twelve members of which twelve, nine will be members of the N.A.M.P. The American Institute of Architects and the American Medical Assn. will be represented on said council by one member each. To preserve the impartiality of the council, it is recommended that the personnel of the council be kept secret to avoid any pressure being applied by manufacturers seeking the council's acceptance of their products, in the method hereinafter described.

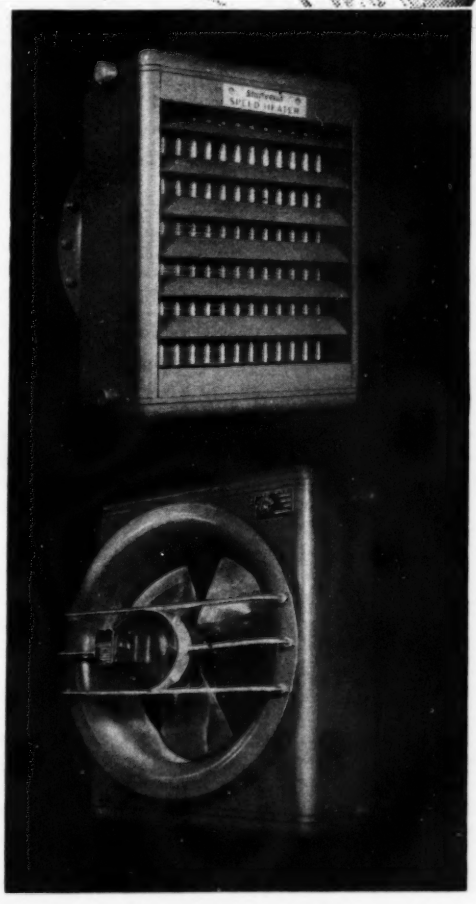
Appoint Representative

It is proposed that the council, as above constituted appoint a representative who would test, and report on, products submitted for the council's acceptance in the manner hereinafter described. Such representative would apply such tests to the materials submitted as would, in his judgment and in that of the council, constitute a fair means of determining whether or not the material or device submitted for test would meet in a satisfactory manner, any or all conditions likely to be encountered in actual use; and would perform, in a satisfactory manner, the

5 BIG FEATURES

in Sturtevant Speed Heaters

that save time—worry—money!



1 UP TO 200 LBS. WORKING PRESSURE
Heating element designed for either high or low pressure and every one tested at 1000 lbs. hydrostatic pressure.

2 EASY INSTALLATION
Handy soft steel hanger supplied. Connect supply and return lines on the most convenient side of heater.

3 ABSOLUTELY LEAKPROOF
Absolutely leakproof heating elements backed by our guarantee for all steam pressures up to 200 lbs.

4 MAXIMUM HEADROOM
Flush with ceiling installation if necessary.

5 QUICK SHIPMENT
Get immediate shipment of popular voltages from a local supply.

Made in a range of 10 sizes from 100 sq. ft. equivalent direct radiation to 1260 sq. ft. For single or multiple speed operation. Write for all the facts.

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Puts Air to Work

SPEED HEATERS ARE DISTRIBUTED BY CRANE COMPANY

work for which the material or device was intended.

The representative of the council, who would perform the tests in a properly equipped laboratory, would report only to the members of the council in a manner hereinafter described, but would make use of such information, tests or other data as might be made available through other testing or laboratory facilities.

Members of the research committee and members of the Iowa Institute of Hydraulic Research, or men who have direct political appointments in connection with plumbing; manufacturers or their representatives, should not be included on the council, and should not vote on the rejection or acceptance of any fixture or device.

The formation of this council is to be left to the board of directors for appointment, with the active cooperation of the organization, and the names of men appointed in this council should not be made public. This new council should be disassociated from the research committee. However, the board of directors of the N.A.M.P. should appoint three representatives of the manufacturers to act in conjunction with the present research committee of the N.A.M.P. for conducting research only.

A favorable report of nine of the twelve members of the council would constitute an acceptance within the meaning of that word as set forth in the following rules:

Suggested Rules

The following council rules have been suggested as a practical method of protecting the public against fraud, misrepresentation, inefficiency, faulty products and objectionable advertising in the fixtures, mechanical devices, appurtenances and methods of installation used in connection with plumbing.

Devices that have been found by the council to be acceptable in relation to purpose, construction, advertising and method of installing, may be described in an Accepted List and published in an official publication of the National Assn. of Master Plumbers. Accepted devices will be allowed advertising space in the publications of the National Assn. of Master Plumbers, as long as they conform to the rules of the council.

Rule 1—A device will not be acceptable for inclusion in the list, or retained therein, unless a full description of its construction and of its method of installation and operation is furnished to the council. Working plans and specifications with photographs and blue prints must be supplied when requested.

Rule 2—A device will not be accepted or retained unless satisfactory evidence of its mechanical efficiency and safety is made available to the council.

Rule 3—A device or method that is advertised will not be accepted or retained, unless all advertising material and other descriptive matter prepared for distribution have been submitted to and been accepted by the council.

Rule 4—A device will not be accepted or retained concerning which the manufacturer, or his agents, make false or misleading statements as to the nature of its construction, method of installating or action.

Rule 5—A device will not be accepted or retained concerning which the manufacturer, or his agent, make unwarranted, exaggerated or misleading statements as to its purpose, benefits or other value.

Rule 6—The directions, and the descriptive circulars or advertising matter, accompanying a device or method, must state plainly the limits of safety and the possibilities of danger attending its use. Devices or methods considered unsafe will be rejected by the council without further consideration.

Health and Safety

Rule 7—A device will not be accepted or retained unless it has satisfactorily passed such tests as the council may deem necessary for the protection of public health and safety. The council must be promptly advised of any essential changes made in the device or method subsequent to its acceptance. Failure to comply with the rule will furnish grounds for the removal of the device or method from the accepted list.

Rule 8—Names for the devices or methods will be recognized only when the council shall deem the use of such exclusive names to be in the interest of public welfare. Names that are misleading will not be recognized. The continued use of well-established trade names must be supplemented by the addition of a descriptive name on the label with the trade name in parenthesis below the main title. No new trade names will be recognized unless they involve the application of a new principle, and otherwise comply with the rules of the council.

Rule 9—The council may, at its discretion, vote to accept devices or methods which meet the requirements of the above rules, provided the manufacturers conform to the letter and spirit of the above rules in all their printed advertisements, literature, etc.

Rule 10—Following the acceptance of any device or method by the council, manufacturers or sales agents are not permitted to use the phrase: "Accepted by the council on Safety and Public Health of the N.A.M.P." or any other phrase of similar meaning in any advertising or other descriptive matter prepared for distribution until all such proposed advertising or descriptive matter has been submitted to the council and accepted by them.

Submission of Apparatus

A formal request addressed to the chairman of the council, should be made for the consideration of a device by the Council on Safety and Public Health. This request should be accompanied by: (a) A complete unit as it is supplied to the trade. (b) A complete description of the construction of the device submitted, or of the method proposed, together with the trade name. (c) A statement of the claims made for the device or method and sufficient evidence to support the claims made. (d) If the device or method is patented, the number of the United States patent and the number of the patent in the country of origin, the number of the United States trade mark and the name under which it is registered in foreign countries (if it is so registered). (e) Twenty copies of such advertising and descriptive booklet, pamphlet or other descriptive matter, pertaining to this device or method.

All correspondence with the Council on Safety and Public Health should be addressed to the Chairman.

Purpose

The Council on Safety and Public Health is established with the primary purpose of gathering and disseminating such information as will assist in determining the value of devices and methods used in plumbing. Such information will protect both the public and the conscientious manufacturer against fraud and misrepresentations.

In pursuance of this object, the council will examine devices submitted, and obtain information in relation to proposed new methods, in order to determine their sanitary value and to determine if they are free from unnecessary danger and are manufactured in conformity with the rules of the Council on Safety and Public Health.

The council may, at its discretion, refuse to give its consideration to a device or method because of lack of evidence of value, or for other reasons which it may deem sufficient. Insofar as the facilities of the council or those available to the individual members of the council allow, the council will investigate the claims of the devices and methods submitted to it. The scope and extent of the investigation will be determined by the council in the indi-

vidual instance, and may involve enlisting the services of impartial consultants in these instances in which the facilities of the council, or those of the individual members of the council, are deemed by the council to be insufficient.

In order that the duties of the council may be exercised with as great fairness and celerity as is possible, the proponents of a device or method are urged to present their claims as clearly and completely as possible in conformity with the rules of the council and to submit only evidence as to merit which the proponents feel is conclusive and beyond controversy. It can strive only to render an unbiased judgment on the evidence presented by the proponents, checked as carefully as possible.

Other Reports

The council may consider itself called upon, in order to fulfill its assumed obligations, to investigate and render reports upon devices or methods which have not been submitted, if it considers such reports important to the public health and welfare. Before such reports are published, the proponents of such devices will be notified of the investigation and the proposed publication of the report, and a reasonable time will be allowed the proponents to conform to the rules and principles of the council before publication of the report.

Previous non-compliance with the rules of the council (short of intentional fraud) does not prevent the favorable consideration of a device or method which is in accord with the existing rules. The acceptance of a device or method by the council means only that after investigation the council is prepared to publish the description of the device or method in its accepted list of devices or methods. Infringements of the rules of the council after acceptance, or the discovery that the council's information was incorrect, will cause the acceptance to be reconsidered and if, in the council's opinion, sufficient grounds exist for such action, the acceptance will be withdrawn. Under such circumstances the listing of the device or method will be discontinued, and the manufacturers instructed to cease the use of the phrase, "Accepted by the Council on Safety and Public Health of the National Association of Master Plumbers." The council desires manufacturers to understand that the acceptance of a device or method does not imply a recommendation. Acceptance means only that the council has found, after due consideration, that the proponents of a device or method, have conformed to the letter and spirit of the aforementioned rules.

The council will, from time to time, review the devices and methods on its accepted list in order to determine whether the purpose, construction, and method of installing of the listed devices and methods continues to conform to the rules of the council. The proponents of accepted devices will be notified of any amendments or additions to the rules of the council affecting their products and be allowed a sufficient length of time to conform to the new rulings before their device or method is withdrawn from the accepted list.

Advertising or other descriptive literature employed in connection with the marketing of an accepted device or method is not countenanced by the council when it is used as a vehicle for advertising other products not accepted by the council. This ruling does not apply to catalogs, price lists, etc. If a manufacturer or proponent of any device which has been accepted by the council makes use of this acceptance to exploit other products which in the opinion of the council do not conform to its principles or rules, all the products of this manufacturer or proponent will be rejected by the council.

Trade Names

The council does not countenance the marketing of an accepted device or an essentially similar device or method under any other name or names than those employed when the device was placed on the accepted list, unless the new name or names have received the acceptance of the council.

The council reserves the right to select a common name for any accepted device or method which by reason of lack or lapse of patent rights is open to manufacture by more than one individual or firm. The council also reserves the right to require conformity with the standards of merit as the council shall deem necessary by all manufacturers of the accepted device.

The council cannot consider for inclusion in its list of accepted devices the products of any firm which makes claims that are misleading, especially if such claims tend to promote the use of devices inimical to the public health or to the public welfare.

The program of research is far enough along to permit the particular item of the pollution of air being drawn through rim ports in toilet bowls to be worked out. The general proposition is to ascertain whether air to relieve the vacuum in a supply line should be permitted to come through any type of opening ordinarily used for the passage of water to a fixture, or whether the air should always be brought in through a special opening made for that purpose, independent of the water passage-ways. The experimental model setup to make these tests is now practically completed and it was felt that sufficient information could be obtained to point the way for regulations regarding air ports on siphon preventors and vacuum breakers. All of this is predicated on the desirability of setting up standards for acceptance of fixtures.

The problem of connections in apparatus used for air conditioning, this to include both the supply and the waste, insofar as it pertains to air conditioning, must be thoroughly investigated.

Investigation of the drainage and venting system should be undertaken. This would involve the measurements of the flow of air in the stacks, particularly in high buildings. In many cases it should involve the study of the flow of the mixture of air and water in the drainage systems. The initial investigation should start at the fixture and should involve a thorough investigation of the so-called anti-siphon traps. This should include the traps used on any kind of plumbing fixtures, including grease traps. The problem of traps and vents should be given first consideration. In addition, many other fixtures might be considered, such as sumps, sewage pumps, cellar drainers, etc.

The following comments on the plan were made by John B. Hawley, president of the California Master Plumbers Assn.:

Hawley Comments

"I have been very much interested in going over the report and agree with you that it should be submitted for the consideration of the board of directors. The report shows that much time and thought has been given to its preparation, but I am convinced that it will have to be modified in some particulars, if the national association is going to stand the burden of expense, to properly conduct such a program.

"In connection with the rules, Rule 3 appears to me to be putting an undue burden on the council and would make it very difficult for a manufacturer to proceed with an advertising program without an unwarranted delay. Would it not be better in Rule 5, to keep advertising within proper bounds?

"It is questionable in my mind if the tentative budget will meet the requirements of the council, as no doubt there would be literally thousands of requests for approval by the council. This would mean considerably larger payroll or assistance in the laboratory, or a delay in action by the council, on many materials which would be hard to explain to the applicants, and might lead to a controversy if approval were given to any one material, if other similar materials had been submitted and reports not yet completed.

"The purpose would naturally be to

have public acceptance. To do this, the testing laboratory and officials, must be above reproach and adequate to serve those who apply for approval of materials.

"It would appear to me that this could only be financed by charging each applicant a reasonable fee for consideration of the article submitted for approval."

McGonegal Comments

A. R. McGonegal, a member of the research committee, commented:

"I agree fully with you in the matter on page 2 of the report and with certain (or most) of the text relative to the 'Council on Safety and Protection,' etc., and main exception being an acceptable vote of nine out of twelve members. It should be eleven out of twelve.

"There are two main items in which I disagree wholly. The first is the testing of fixtures, appliances, or methods at either a university laboratory or a laboratory operated for gain, as in, for instance, the 'Pittsburgh Testing Laboratory,' and my second objection is, I am unalterably opposed to advertising in *Bulletins*.

"Anent the first objection: I have always felt that the national association in approaching the test element of our program should either seek funds from Congress or provide the necessary funds through the semi-public research committee here to have this work done here at the Bureau of Standards. No university, university professor or paid physical engineer can command anywhere near the respect that a dictum from the governmental institution could, and I don't believe in half-way measures. I know that there have been circulated in the not distant past, reports from various university authorities which sometimes were only partly quoted, and which were in no way true representations, and these were presumably allowed by their writers to be used for advertising purposes knowing that the good points were emphasized and the bad points left out. I have positive proof of this. Several of them were checked in our laboratories here and two at another governmental laboratory.

"To my mind, it would be just as well if an all-industry laboratory was established pretty much on the order of the American Gas Assn., the Underwriters Laboratories, etc., each supreme in its own field, but each one of them with nation-wide prestige, which a university laboratory or semi-public laboratory could not hope to be.

"I am opposed to advertising in the *Bulletin* for several different reasons. There is the legal angle with its attendant court procedure, if the master plumbers' association refuses to approve something that has been approved in other university and semi-public laboratories substantially on the same basis. There is the possibility of friction with labor if we, the master plumbers, approve labor saving devices and methods. There is the legal tangle that might ensue with the removal of an article from the accepted list by us after having once been granted listing. There is also the undeniable fact that plumbing inspectors by and large throughout the country, the majority of whom have labor connections, would refuse to accept the dicta from anything less than a governmental or an all-industry laboratory.

"There is the further question as to whether Professor Dawson has, with all his industry, the findings in hand relative to tests which would give the laboratory, as now set up, the background necessary to function fully as a testing agency director for all kinds and sorts of methods, fixtures, etc.

"There is also the problem of space and personnel, there being literally thousands of appliances, etc., on the market which manufacturers would presumably, if they believed in this program, immediately submit.

"Assuring you, in closing, that I am heartily in favor of research and testing as two separate units, the testing to be done in some governmental unit or in a unit supported wholly by and through the plumbing industry."

Chicago Bowling

In the first of the season's bowling matches of the North and Northwest Side (Chicago) Master Plumbers' Pleasure Club, the plumbers won over the Grinnell Co. (Chicago branch) team. High individual game was made by Bob Nelson with 289. Ernie Wagner rolled 194 and Henry Swade 183.

After the match, D. O. Anderson, Chicago Grinnel Co. manager, was host at a pork shanks and sauerkraut dinner at the Logan Square Athletic Club. The business meeting of the club was held following the dinner. Paul Hamer, chairman of the entertainment committee, was toastmaster and chairman.

Scores follow:

Master Plumbers

Robert Nelson	560
Henry Swade	478
Ernie Wagner	522
Charles Jones	475
Paul Engelhardt	450

Grinnell Co.

Joe Paus	343
Tom Horan	427
Harry Liteau	459
Jack Lenhardt	470
D. O. Anderson	434

Binghamton Code

The new plumbing code for the city of Binghamton, N. Y., is to be acted upon by the city council shortly after January 1. Aimed at the prevention of epidemics and the spread of disease, the new code has been in preparation for several months by the City Board of Plumbing Examiners.

The new code is designed to replace an antiquated measure which has governed local plumbing for many years. Dr. C. J. Longstreet, city health officer, pointed out that the code replaces many obsolete features of the old measure. It is intended to give property owners the assurance that the plumbing work will be done right, and furthermore to give the public the greatest possible protection.

Kruse Entertained

N.A.M.P. Pres. L. J. Kruse and Secy. Loy F. Johnston were the guests of the Chicago association at a dinner in the Congress Hotel November 4.

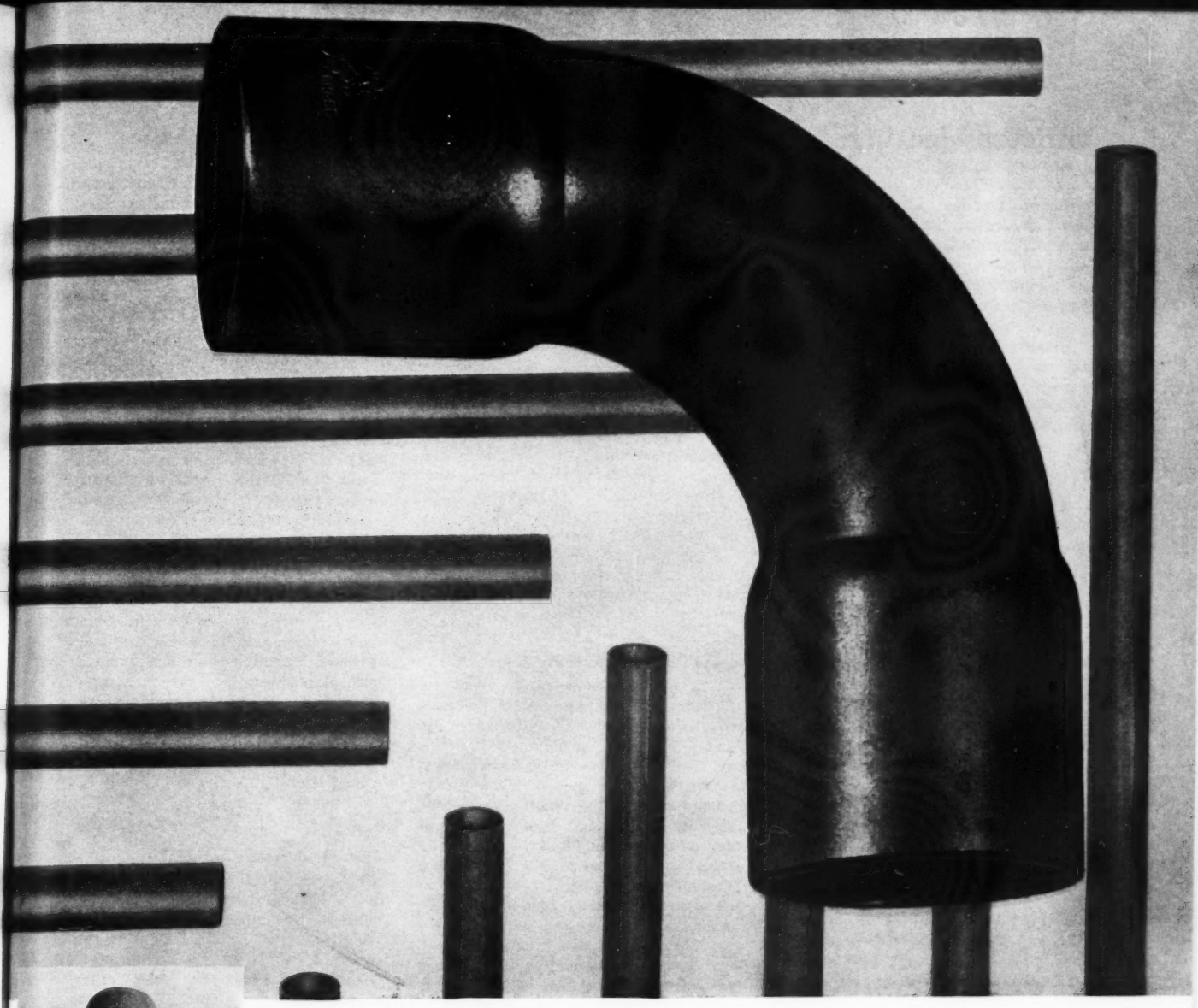
Thomas F. Hanley, Jr., president of the local association, John J. Calnan, past national president, and Charles E. Gawne, president of the state association, welcomed the guests. Responding, Mr. Kruse thanked the Chicago association for its hospitality and outlined the program which the present administration hopes to accomplish for the advancement of the national group and its membership. Mr. Johnston also spoke.

The following spoke briefly: William Hildeman, T. W. Merryman, James W. Fettes, Charles A. Dreier, John T. Dorsey, Robert Murphy, A. J. Racine, H. P. Reger, Charles J. Stanley, R. J. Weber, William J. Woolley, Charles A. Alcock, George J. Feldkamp, Fay Ferguson, George Mathews, Michael Mele, Harry Breetzke, William R. Brookman and Peter M. Munn.

Trailer Camps

On the question of trailer camp sanitary rules and regulations, a representative of the American Society of Sanitary Engineering suggested at the recent convention of the Pacific Coast Plumbing Inspectors Assn. (Domestic Engineering, November) that the chair appoint a committee to study the present California trailer camp law with respect to its operation in unincorporated areas, with a view to strengthening its provisions and making it more effective from the standpoint of public health.

Pres. J. M. Winkler appointed W. D. Hobro head of the committee to make the study. He will be assisted by E. A. Court and E. A. Longley.



"For a rust-proof, leak-proof, trouble-proof job," says Robert M. Morford, leading Philadelphia plumber, *"I don't think you can beat Chase Copper Water Tube."*

REDUCES FRICTION LOSS

With smooth walls, and full sweep, the Chase Sweat Elbow cuts down friction loss and increases the efficiency and the flow capacity of the heating system.

CHASE

Brass Pipe
Copper Tube
Sweat & Flared Fittings
Plumbing Supplies
Copper Roofing Products

CHASE BRASS & COPPER CO.
Incorporated
Subsidiary of Kennecott Copper Corporation
Waterbury Connecticut

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Officers Meeting

Numerically and financially the Illinois Master Plumbers Assn. is now in a stronger position than for several years, according to a statement by William R. Brookman at the Presidents and Secretaries Conference of local associations, held at Springfield recently. Representatives from sixteen local associations attended.

Reports of progress were made by the state officers, and other matters of interest including the question of distribution were discussed. T. W. Merryman talked on organization and stressed the importance of members attending their local meetings as well as the state conventions.

At a meeting of the state board of directors, following the conference of presidents and secretaries, Springfield was chosen as the site for next year's state convention, to be held January 17, 18, 19 and 20. Pres. Chas. E. Gawne, First Vice Pres. A. J. Stephens, Second Vice Pres. T. D. Lewis, Sec. William R. Brookman and J. A. Van Natant were state officers present at the meeting.

Testimonial

In recognition of his twenty years conspicuous service as chairman of the plumbing, heating and air conditioning industries division of the Federation for the Support of Jewish Philanthropic Societies of New York City, more than 300 prominent members of the plumbing and heating industries, and civic and philanthropic leaders recently participated in a testimonial dinner to Morris Jarcho of Jarcho Bros., Inc., New York City.

In addition to a plaque symbolic of the industry's esteem which was presented to Mr. Jarcho by Jere L. Murphy, contributions totaling over $8,000 were raised and donated to Mr. Jarcho's chief philanthropic cause. Mr. Jarcho's response expressed his appreciation of the cooperation he had secured through the years from many members of the industry.

Buffalo Grows

With the opening of the Fall and Winter season, the Master Plumbers Assn. of Buffalo, N. Y., presents a greatly strengthened membership. At a meeting recently, favorable action was taken on the following applications for reinstatement of old members or for new members: John J. Kaveny, Albert Fleischauer, Melvin Speth, A. J. Petrie, Chippewa Contractors, Inc., Theo. H. Karlinski, George H. Sander, Clyde Lannen and Nelson G. Baynes.

Heat Exchangers

Heat Exchange Institute, New York City, has announced the publication of Standards of the Tubular Exchanger Section covering mechanical, construction and thermal standards for shell and bare tube heat exchangers. The standards contain data on exchanger shells, tube sheets, baffles, support plates, tubes, material specifications, fouling factors and thermal design data.

Dayton Meeting

The W. H. Kiefaber Supply Co., in collaboration with the Johns-Manville Corp., were hosts to the plumbing and heating contractors of Dayton, Ohio, and vicinity on November 17. Eighty-one persons attended.

A sports picture and the movie, "Heat and Its Control," were shown. Refreshments were served.

Chicago Dinner

The annual dinner of the Western Plumbing and Heating League, Chicago, was held November 4. About 175 attended, including members, their wives and representatives of various supply houses.

The feature of the evening was a talk on sanitation by H. J. White, Congressman at large from Illinois. William R. Brookman, secretary of the Illinois Master Plumbers Assn., responding for the association, stated that the state organization is interested in sending to the state legislature representatives who believe in the enforcement of local and state health laws. H. J. White, representative of the 35th district, also spoke.

T. D. Lewis, secretary and treasurer of the league, arranged the music and entertainment.

See Motion Picture

Under the auspices of the Washington Coal Merchants, Anthracite Industries, Inc., showed their sound motion picture, "Green Lights Ahead," to a gathering of about 200 representing a number of business groups in Washington, D. C. on November 16.

Among the groups represented at this showing were the Washington Coal Merchants, the Washington Real Estate Board, the D. C. Chapter of the American Society of Heating and Ventilating Engineers, the D. C. Chapter of the American Institute of Mining and Metallurgical Engineers, members of the architectural and building professions, and officials of the various departments in both the Federal and District Governments.

Sanitary Club Meets

The Fox River Valley Sanitary Club, composed of plumbing contractor-dealers, heard Peter J. King, assistant secretary of the Wisconsin Master Plumbers Assn. at their meeting in Green Bay, Wis., November 10.

Canadian Institute

Prophecies of increased business for 1938 keynoted the annual general meeting of the Canadian Institute of Plumbing and Heating held in Toronto, Ont., last month.

Pres. Thomas Robertson expected "a continuation of the recovery process, though probably at a reduced tempo, during the Spring, Summer and Autumn of 1938."

One of the main topics of discussion concerned business derived through the institute's cooperation in the Home Improvement Plan, a government loan plan to encourage home repairs and new home building, which is proving a source of business.

Charles H. Ivey, vice president of the Empire Brass Manufacturing Co., was elected president. Newly elected vice presidents are I. R. Leger, G. C. McAvity and C. G. Sherman.

Open Showroom

Hajoca Corporation's Bethlehem, Pa., branch officially opened its new showrooms on November 23. Six hundred guests inspected the exhibit during the evening.

The following officials from other companies were present: William M. Thompson, J. B. Wise Co.; Daniel Quinn, Standard Sanitary Mfg. Co.; James Noonan, American Radiator Co.; James Smith, Rockwood Sprinkler Co. Hajoca officials William A. Brecht, president; C. C. Lowrey, vice president, and Edward J. Ball, vice president were present and talked to the guests.

The Bethlehem *Globe Times* issued a special supplement featuring the new showrooms.

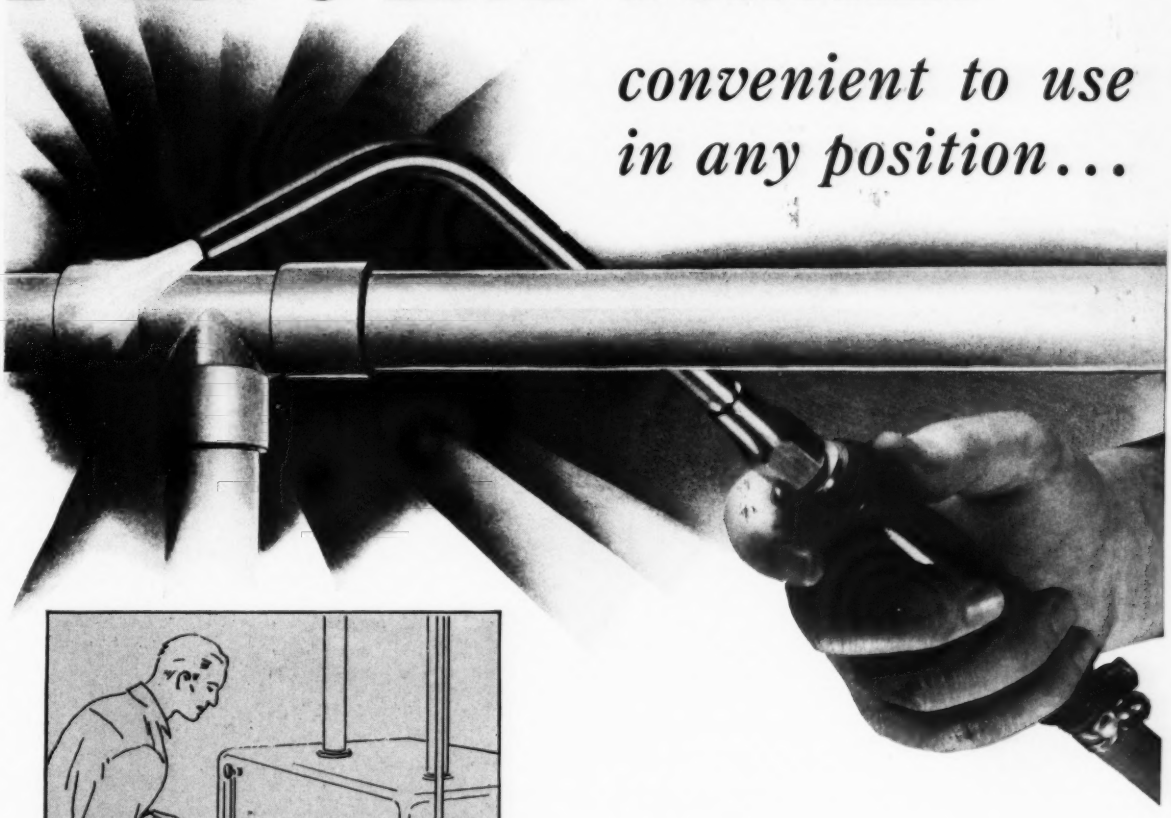
Water for A. C.

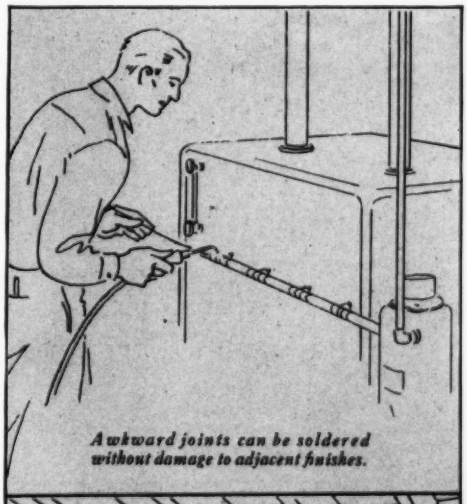
City departments in charge of the utilities have launched a study of Milwaukee's water supply and sewerage systems to determine their capacity to handle increasing demands created by air conditioning installations, particularly in the downtown area.

The survey is being made to determine the extent to which such installations, approximately 150 major ones, increase peak loads of he waterworks during summer days.

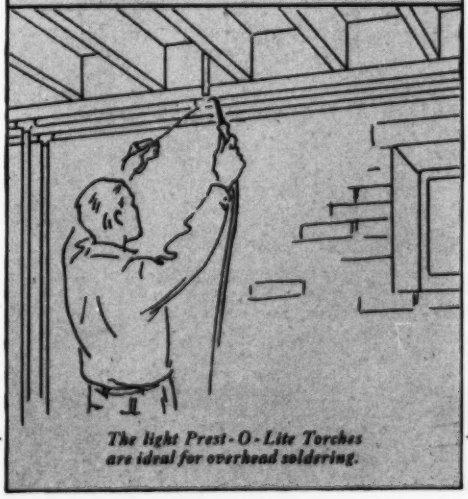
PREST-O-LITE* TORCHES

convenient to use in any position...





Awkward joints can be soldered without damage to adjacent finishes.



The light Prest-O-Lite Torches are ideal for overhead soldering.

WITH the slender, gooseneck-type tip and high-temperature air-acetylene flame of Prest-O-Lite Torches you can apply heat exactly where you want it. These modern torches, for soldering, heating and light brazing, provide an efficient and exactly controlled flame in whatever position they are held. They will save both time and money.

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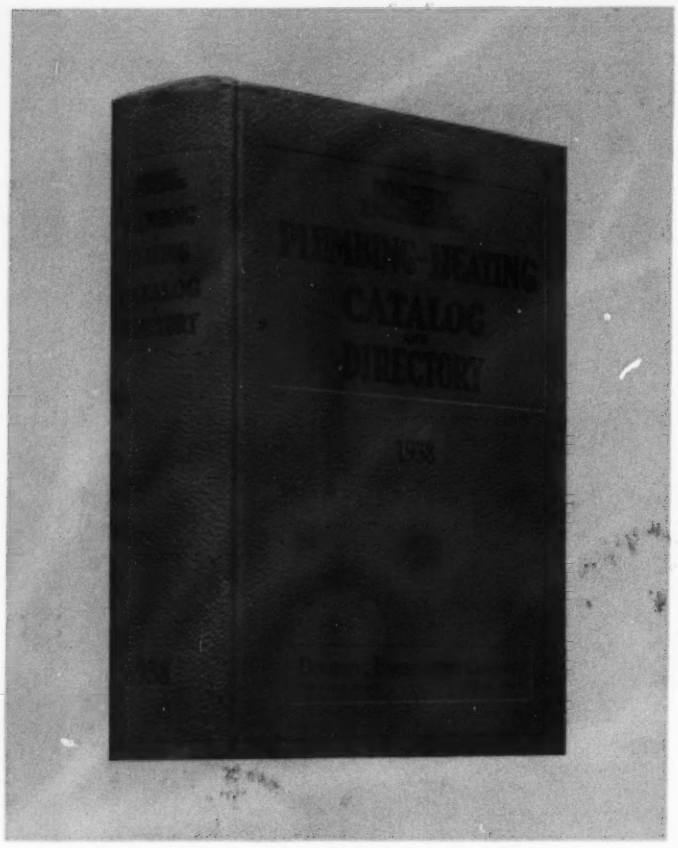

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Section III contains a most complete Classified Directory of several hundred pages of virtually every known product in the Plumbing and Heating Industry. This section is so classified and cross-indexed that it takes but a few moments to locate the manufacturer of any plumbing and heating item.

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Section IV—a new Trade Name Section which has been compiled *separately* and shows not only the trade name, but also the item to which it is applied and the manufacturer's name and address.

NAMES and ADDRESSES

Section V contains names, street addresses, city and state of all known manufacturers of plumbing and heating items.

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DOMESTIC ENGINEERING CO., 1900 Prairie Ave., Chicago, Ill.

Pa. Mid-Year Meeting

● *Recently enacted state plumbing law is described and discussed by speakers at meeting of Pennsylvania State Association*

The new law governing plumbing in cities of 3,500 or over was the principal topic of discussion at the mid-year meeting of the Pennsylvania State Assn. of Master Plumbers, held in the Penn Harris Hotel, Harrisburg, on November 20. Pres. Henry O. Heiser presided at the meeting.

C. B. Nash, vice president of the Standard Sanitary Mfg. Co., complimented the members of the association for their good work in sponsoring the new law. Then he discussed the prospects for business and the size of the need for new fixtures.

Mr. Nash quoted government statistics to the effect that 64 cities surveyed need 15 to 45 per cent more bathtubs, water closets and bathing facilities. A private survey disclosed that 25 per cent of plumbing fixtures in use would not pass a test of safety. The speaker then described inadequate and outmoded facilities in stadiums, fair grounds, roadhouses and other public places. He said that such conditions are the responsibility alike of the owners and our industry. He said that the members of our industry must take even a larger and more active interest in public health and sanitation.

Stating that 70 per cent of the present business for our industry is in modernization, Mr. Nash said that plumbers would get that business in proportion to their interest. He pledged the aid of the manufacturers.

H. E. Moses, chief engineer of the Department of Health, State of Pennsylvania, urged those present to study the new plumbing act and to aid in its enforcement. "You are the guardians of public health," he said. He then outlined some of the provisions of the act which, he said, had been needed and worked toward for 36 years.

The first feature of the afternoon program was the showing of the Johns-Manville picture, "Heat and Its Control." L. C. Leslie, of the company's Philadelphia office, spoke.

Joseph Addams, Crane Co., James Larmette, American Brass Co., and H. H. Held, Kohler Co., spoke briefly. E. L. Penfrase, Copper and Brass Research, read a paper pertaining to progress in copper and brass uses.

The following zone delegates made their reports: Norbert Corrigan, Hazelton; D. W. Davis, Wilkes-Barre; Stanley Florey, Scranton; C. B. Hartman, Stroudsburg; O. E. Melhorn, State College; Samuel Nichols, Washington; E. N. Shrape; Edgar Walker, Charleroi; Thomas F. Scanlon, Pittsburgh.

Thomas E. Lee, newly appointed chief plumbing inspector, mentioned some of the highlights of the code, and said that every master plumber should live up to the law. He dealt particularly upon the protection given the public by the measure. Later, he answered questions.

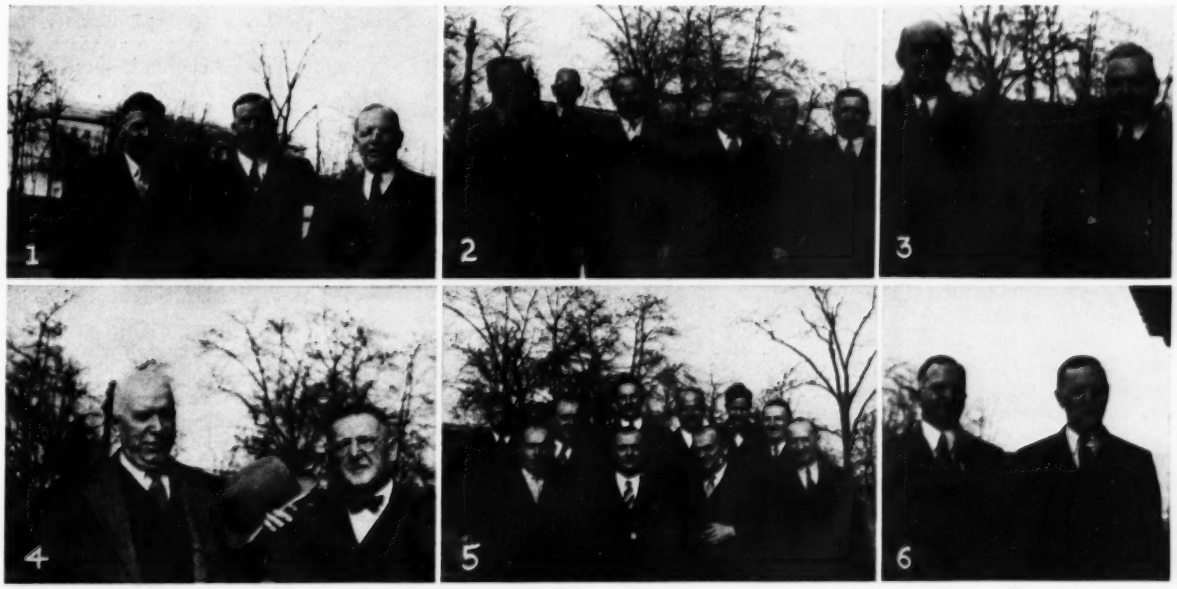
William A. Schneider, national director, brought greetings from National President Kruse, and complimented the association on the new code. He said its benefits would be realized more and more as time goes on.

John Lammond, president of the Philadelphia association, called attention to the dinner on January 27 in honor of Robert Pflug-Felder, retiring as secretary of that association after 25 years of service.

Philip Hering, Jr., in one of the final talks, outlined the meaning to contractor-dealers outside Philadelphia of the new plumbing law.

Halloween Party

A Halloween Party of the West Suburban (Chicago) Master Plumbers Assn. was held November 2 at Forest Park Club House, with an attendance of 150 master plumbers, supply men and ladies. A buffet luncheon and refreshments were served. The entertainment included dancing. The officers of the organization are Grover C. Scott, president, and Alfred Miller, secretary.



Taken at the mid-year meeting of the Pennsylvania State Assn. of Master Plumbers. 1. Arthur Wilson, E. N. Sharpe, William Stranaghan; 2. (Front) Fred Korper, D. W. Davis, William Wright, James O'Rourke, P. Johnson; (rear) Ray Burrett, W. C. Williams, Roy Burrett; 3. S. F. Nichols, plumbing inspector of Washington, Pa., and guest; 4. Thomas J. Lee, chief plumbing inspector of Pennsylvania; William H. Ambrose, eastern division state plumbing inspector; 5. (Front) Frank Kurtz, Harry Iredale, William Frey, James McStay, state director; (rear) F. Frey, John Hering, Frank Blazek, Conrad Eisman, William Frey, Jr., Philip Hering, Jr.; 6. James Larmette, manager of American Brass Co. of Pennsylvania, Norbert Corrigan

Utah Examinations

Approximately 250 journeymen and masters have taken the examination provided for in the new Utah plumbing law, according to A. M. Scott, chairman of the board of plumbing examiners. Between 85 and 90 per cent of those taking the examination passed.

The other members of the examining board are Lester Bills, past president of the Salt Lake City Licensed Plumbers Assn.; William A. Bywater, past national director; Newell Pickett, sanitary engineer for the state board of health; and S. W. Golding, state director of registration.

The enforcement of the act is under the direction of the state department of registration. To aid the department, a state enforcement committee from the plumbing industry in the principal cities has been formed. John H. Reeve, S. A. Erskine, Raymond Hilton, Alex Mortenson, Earl Blumenthal, Ross Nuttal, Elwood Carter, Orvill Waldram, Milton K. Bachman, Melvin Charlesworth and Howard Halverson are active in these committees in various cities.

R-P Act Discussed

The Montclair, Bloomfield, Verona and vicinity (N. J.) Master Plumbers Assn. held its monthly dinner meeting in Bloomfield recently, with 48 in attendance. Pres. John Klimback presided.

Mr. Jefferes of the Essex County Vocational School talked on the need of well trained apprentices. He said the school was prepared to offer courses by well known men on plumbing and heating. A discussion of the Robinson-Patman Act followed. Nearly everyone took part in the discussion.

Plans are being made for a Christmas party.

Golf Dinner

The annual Mid-Winter dinner and get together of the Chicago Trades Golf Assn. was held in the Congress Hotel December 4. One hundred master plumbers and supply men were in attendance. William F. Hildeman, chairman of the golf committee, presided.

In appreciation of his services to the golf committee, both as chairman and official scorer, George Mathews was presented with a testimonial. Brief talks were made following the dinner.

Peter M. Munn read the financial reports showing the association to be in good condition. Now in its twelfth year, the association reported a total attendance of more than 400 at tournaments this summer.

Public Health Assn.

Dr. Abel Wolman, state sanitary engineer of Maryland, was elected president of the American Public Health Assn. at a recent meeting in New York City. He takes office at the time of the 1938 convention and serves one year from that date. During the past year, he received an honorary degree of doctor of engineering, and was made professor of sanitary engineering at Johns Hopkins University.

Joel I. Connolly, Chicago Board of Health, who has been chairman of the joint committee on plumbing of the association for several years, was elected chairman of the public health engineering section.

The American Public Health Assn. includes health workers in the United States, Canada, Mexico, Central America and other foreign countries. Owing to the fact that public health work goes forward on a number of fronts, there are several professional groups actively engaged in the war against disease. Among them are physicians, sanitary engineers, nurses, laboratory workers, dieticians, experts in nutrition and others, each with their particular interests and special fields of activity.

There are ten sections designated as public health engineering, health officers, laboratory, vital statistics, industrial hygiene, child hygiene, public health education, public health nursing and epidemiology. The organization publishes the *American Journal of Public Health*, and a special annual yearbook.

Health Ordinance

The common council at Shawano, Wis., on November 2 adopted a health and sanitation ordinance which provides that all buildings that are located on streets equipped with sewers must install water closets and eliminate outhouses not later than 1939.

New buildings constructed on streets equipped with sewers are required to make the installations at once. Violators are subject to a fine of from $10 to $100 or 90 days in jail. Each day the ordinance is violated constitutes a separate violation.

See Motion Picture

The plumbing and heating contractors of Charlotte and vicinity recently saw the talking motion picture, "Heat and its Control," produced by Johns-Manville. The meeting was held at Hotel Charlotte under the auspices of Crane Co. and Horne-Wilson, Inc. H. C. Drummond, Johns-Manville district representative, gave a talk.

Dayton Annual

Election of officers of the Master Plumbers Assn. of Dayton, Ohio, will be held at the annual meeting of the association, Monday, December 6. At the same time, a program for the ensuing year will be discussed. J. E. Withers, business manager, has been holding a series of meetings of members to determine what the individual members' ideas upon a program for the ensuing year should be. This method was adopted as it was found not always possible to learn each member's views in a regular association meeting.

New Jersey Meeting

Edward J. Geyer, president, addressed a meeting of the New Jersey Master Plumbers Assn. in the offices of Albert F. Ruehl, second vice president, in Newark recently. Among those present were George H. Brenner, first vice president; John Klimback, third vice president; Ira Morris, secretary; Lester Wake, field secretary; George H. Werner, past national president; James Lewis, past state president.

Philadelphia Meeting

A number of speakers were on the program of the November 4 meeting of the Philadelphia, Pa., Master Plumbers Assn. Pres. John Lamond was chairman.

James McStay reported on a testimonial dinner to be held on January 27 in honor of Robert Pflug-Felder for his quarter-century of service as secretary. All indications point to a large turnout, said Mr. McStay.

Introduced by Walter Raid, chairman of the education committee, S. Sedelmeier, Alexander Hamilton Institute, spoke on "Forging Ahead in Business."

William Howard, in charge of the heating division of the Philadelphia branch of Crane Co., spoke on his company's products and policies. James Dwyer, eastern regional manager of the company, and Harry Officer, manager of the Philadelphia branch, also spoke.

J. A. Lattner, secretary and treasurer of Century Engineering Co., Cedar Rapids, Iowa, spoke at length on his oil burner which Crane Co. has adopted as its official burner.

Elected Alderman

Richard J. Fitzgerald, well known master plumber, was elected alderman for Oswego, N. Y., recently. John Roach, also a master plumber, is retiring as alderman of the seventh ward after three terms in office.

Obituaries

G. Albin Nilson

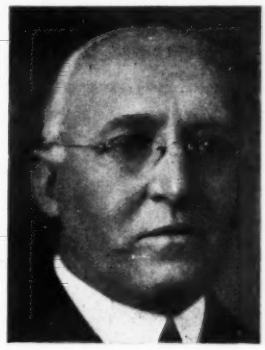
G. Albin Nilson, 62, president of the Fiat Metal Co., Chicago, died November 20 following a brief illness. He was born in Sweden, coming to this country while a young man. For a number of years he was associated in the plumbing business in Chicago with his brothers under the name of Nilson Brothers. In 1929 he retired from the plumbing contracting business to devote his entire time to the Fiat Metal Co., which he had organized in 1916. Mr. Nilson is survived by two sons, two daughters, three brothers and a sister.

D. A. Cummings

Donald A. Cummings, 85, longtime plumbing and heating contractor-dealer of Halifax, N. S., died recently. He had been in retirement for about a year. Surviving are his widow, three sons and three daughters.

T. M. Genner

Thomas M. Genner, of the firm of Genner Brothers, Philadelphia, Pa., died recently.



A. B. Pierce

A. B. Pierce

Alex B. Pierce, 70, president of N. O. Nelson Mfg. Co., died suddenly November 25. He had been in good health up until two weeks before his death. He was well known in the industry.

Mr. Pierce was president of the Past President's Club of the Central Supply Assn. He served as president of the supply association from 1919 to 1921.

Leon Merriman

Leon Merriman, 85, pioneer plumbing and heating merchant, died Nov. 14 at his home in Fort Atkinson, Wis.

J. D. Hibbard

John D. Hibbard, 72, associated with the John Davis Co., Chicago steamfitters, until his retirement in 1924, died recently in Los Angeles, Calif. He was formerly an official of the National Metal Trades Assn. He is survived by his widow, one son and two sisters.

W. E. Stevens

Walter E. Stevens, assistant vice president and manager of eastern division sales, Walworth Co., died suddenly at Somerville, Mass., recently. During his 30 years of active work in the plumbing and heating field, he won an unusually wide circle of cordial friends among manufacturers, wholesalers and contractors. He was a hard worker, his death coming just after his attendance at a convention of the New England Wholesalers.

H. L. Scovill

H. Lamson Scovill, 56, president of the Oiljak Manufacturing Co., and a director of the Scovill Manufacturing Company, Waterbury, Conn., died recently in Madison, N. J. Surviving are his widow, two sons, one daughter, a sister and his mother.

Send for this new catalogue on the complete line of insulations for the plumbing and heating trade

backed by a name known to millions

. . . JOHNS-MANVILLE

(*left*) J-M Pre-Shrunk Wool Felt. Furnished either with canvas or with a handsome aluminum finish that ends pasting, saves ⅓ in application labor.

J-M Pre-Shrunk Asbestocel supplied in three finishes: regular canvas, high-speed asbestos paper and high-speed de luxe aluminum.

J-M 85% Magnesia. Highest insulating value. Neat appearance. Permanent. Costs more, but worth more. And a handsome profit for you.

J-M Asbestocel Range Boiler Jacket saves enough fuel in a few months to pay for itself. A sales story that lands many an extra $6 to $8 job.

HERE'S THE LATEST Johns-Manville Catalogue on plumbing and heating insulation materials for every type of new construction or modernization work. These products save money for home owners and give you an extra profit every time they are used. They are easily sold . . . easily applied at low labor costs . . . and they *stay* installed. Ask your J-M Supply House or write Johns-Manville, 22 East 40th Street, N.Y.C.

J. H. Borton

J. Harvey Borton, 65, former chairman of the board of the Hajoca Corporation, died recently. He was widely known in the plumbing and heating industry in the eastern states. He is survived by his widow, two brothers and a step-daughter.

S. B. Harvey

S. B. Harvey, active in the plumbing and heating business in Minneapolis, Minn., for 35 years, died recently in Santa Monica, Calif., where he was in retirement. He is survived by two brothers and one sister.

F. B. Howell

Frank B. Howell, 74, associated for 40 years with the American Radiator Co., died recently in New York City. First employed in the New York office of the company, he served successively as manager of the Buffalo branch, assistant manager of the Michigan plant, and manager of the Bond plant in Buffalo. Later he was made superintendent of Eastern branches and then assistant general manager of sales. He is survived by his widow, one brother and one sister.

New Contractors, Business Changes

Glasgow, Mont.—C. D. Maudlin has purchased a plumbing and heating business which was formerly operated by S. J. Daniels.

Independence, Iowa.—Frank Shaw has purchased the Park J. Travis Plumbing and Heating Co.

Perham, Minn.—M. J. Schmitz has engaged in the plumbing and heating business.

San Francisco, Calif.—Oswald and Servadir have opened a plumbing business at 703 Columbus Ave.

Santa Rosa, Calif.—D. W. Hall has opened a plumbing and heating shop at 127 Fourth St.

Convention Dates

January 17-20.—ILLINOIS.—Annual convention of the Illinois Master Plumbers Assn., to be held in Springfield with headquarters (tentative) in the Abraham Lincoln Hotel.

January 24-28.—A.S.H.V.E.—Exposition of the American Society of Heating and Ventilating Engineers, to be held at New York City, with headquarters at Grand Central Palace.

January 25-26.—HEATING AND AIR CONDITIONING.—Winter convention of the National Warm Air Heating and Air Conditioning Assn., to be held in New York City with headquarters at the Roosevelt Hotel.

February 7-9.—CONTRACTORS.—Twenty-fourth annual convention of the Master Sheet Metal, Heating, Ventilating and Air Conditioning Contractors Assn., Inc. of Wisconsin, to be held in Milwaukee with headquarters in the Republican Hotel.

February 9.—NEW HAMPSHIRE.—Annual convention of the New Hampshire Assn. of Master Plumbers, to be held in Concord.

March 8.—MAINE.—Annual convention of the Maine State Assn. of Master Plumbers. City not chosen.

April 18-19.—MINNESOTA.—Annual convention of the Minnesota State Master Plumbers Assn., to be held in Minneapolis with headquarters in the Nicollet Hotel.

May 2-3.—FLORIDA.—Annual convention of the Florida State Assn. of Master Plumbers and Heating Dealers, Inc., to be held in Jacksonville with headquarters (tentative) in the Seminole Hotel.

June 6-9.—N.A.M.P.—Fifty-sixth annual convention of the National Assn. of Master Plumbers, to be held in Cleveland, Ohio, with headquarters in the Hotel Cleveland.

Regulators offer You a Market for More SALES!

EVERY retail customer, on sales, installation, or repair of furnaces, boilers, heaters, kitchen ranges, water heaters—in fact ANY Gas Appliance for home, industrial or commercial use—is a potential buyer of a Gas Pressure Regulator. Point out to these people the assured fuel savings, the greater safety, the all-round satisfaction, of equipping either the line or the appliance with a Regulator. You'll be surprised at how easy it is to make the additional PROFIT on this NECESSARY equipment. For perfect results—be SURE it's a BARBER Regulator!

Many Gas Appliance makers have adopted the Barber Regulator as a standard accessory—they like its EYE-APPEAL, an appearance in keeping with modern design in heating equipment.

Built to Barber standards of precision, carefully inspected, gas-tested for operation within a range of 3/10 pressure drop. Attractive, compact design, all-bronze body. A. G. A. approved (¼" to 1½" sizes). Priced for PROFIT TO YOU! Write for catalog and price list on Barber Burner Units for Gas Appliances, Conversion Burners for Furnaces and Boilers, and Regulators.

Made in the following sizes: ¼", ⅜", ½", ¾", 1", 1¼", 1½", 2"

THE BARBER GAS BURNER CO., 3704 Superior Ave., Cleveland, Ohio

BARBER GAS PRESSURE REGULATORS

Women

Conducted by . . . Dorothy Edwards

Plan Holiday Events

● *Christmas parties, other social events, business, charity, essay contests provide full calendar of auxiliary activities*

Auxiliary events are now getting into full swing with the coming of the busy winter and holiday season. Entertainments are planned and other, more serious activities are projected.

N. J. State Meeting

The Women's Auxiliary of the New Jersey Assn. of Master Plumbers was entertained by the Newark Auxiliary at a recent meeting. Cards were played after a delicious dinner.

Mrs. Clyde Cole of North Hudson, the president, presided at the business meeting. Mrs. J. Corcoran, second vice president of the state organization and national chairman of sanitation, made a talk. Mrs. Bunker, state chairman of sanitation, also spoke.

It was decided that letters will be sent to chain stores in each locality in an effort to induce stores operating lunch counters to install sanitation facilities for the use of the public.

Greetings from the national president, Mrs. George E. Doench, were read. Mrs. Preston Perham, Boston, Mass., also sent greetings through Mrs. Zimmerman. The death of Mrs. Charles D. Kieser, past president of Massachusetts, was noted with regret.

Past state presidents who attended were Mrs. Zimmermann, Mrs. Williams, Mrs. Samuel, Mrs. Orriss, Mrs. Corcoran, Mrs. Bunker, Mrs. Berg, Mrs. Conard and Mrs. Komoski. Mrs. Williamson, convalescing in New York, missed her first board meeting in years.

All of the local presidents were present as were also all the members of the state board. The chairlady of arrangements was Mrs. Lewis, who was assisted by Mrs. Bormann, Mrs. Brady, Mrs. Schleckser, Mrs. Schultz and Mrs. Mayr. Mrs. Ruehl is the president of the Newark auxiliary.

Christmas Fete

The Women's Auxiliary of Orange, N. J., will hold a Christmas party on December 18 at the Elks Club in East Orange. The state board members, who will hold a meeting in the afternoon, will be entertained afterwards at the party.

Dayton Celebrates

In celebration of the twentieth anniversary of the Ladies Auxiliary of the Master Plumbers Assn. of Dayton, Ohio, the ladies entertained their husbands and the members of the master plumbers association at a dinner on November 16 at the Georgia McGowan Tea Room. Thirty-one guests attended the dinner.

Mrs. Ed. Metcalf, president, presided at the dinner. The evening was spent in playing cards. Prize winners were Mrs. Fred Reininger, Mrs. Henry Saunders. Ed. Metcalf and Sam Fahrer were winners of men's prizes.

The Auxiliary has enjoyed a permanent organization two years longer than the state auxiliary. The organization has twenty members. Under the direction of Mrs. Metcalf, the group has arranged several affairs during the past year.

Mrs. Frank Clemens, Mrs. Charles Vehorn, Mrs. William Brink and Mrs. William Haas, charter members, were guests of honor at the dinner.

Queens Meeting

The first fall meeting of the Women's Auxiliary of the Master Plumbers Assn. of Queens, N. Y., was held recently, with Mrs. Budrie, the president, in the chair. Plans were made for a barn dance.

Pal Club Meets

The Women's Auxiliary of the Master Plumbers Assn. of Philadelphia, Pa., held their first meeting following the summer recess recently. The officers and directors met at the Robert Morris Hotel for dinner.

After adjournment of the business meeting, the Pal Club held its party, at which last year's Pal was named and presented with a gift. Names then were drawn for new Pals for the coming year.

Every one present was given a surprise refreshment plate. These afforded considerable amusement and laughter. Table decorations were a variety of fall flowers and roses. The entertainment committee was made up of Mrs. Maney Feeney, Mrs. Emma Henderson, Mrs. George Hicks and Mrs. William Beahm.

Card Party

The first dinner and card party of the Women's Auxiliary of the Master Plumbers Association of Newark, N. J., was held in Newark recently. Mrs. J. O. Lewis of Newark was chairman of this affair.

Charity Card Party

The Women's Auxiliary of the Milwaukee, Wis., Master Plumbers Assn. held their annual charity card party on November 5. One hundred twenty-two tables constituted the party.

The affair is sponsored once a year to raise money for needy families at Thanksgiving, Christmas and other times when the need is apparent. The members of the auxiliary worked all during the Summer to have the prizes ready and insure the success of the party. A bake sale was also held in connection with the event, and this brought a good sum.

Mrs. Joseph J. Mueller, general chairman, was assisted by a capable committee as well as by Mrs. George J. Stoehr, president of the auxiliary, who helped supervise arrangements.

Essay Contest

The Florida Women's Auxiliary of the Master Plumbers Assn. has announced an essay contest among the school children of the state. The subject is "The Value of Sanitation."

The object of the competition is to stimulate interest in sanitation among youth and to impress the public with the essential service the master plumber performs in his relationship to health and his relationship to the community.

Not more than three essays will be received from each district. The essays must not exceed 300 words, and originality will be one of the points upon which prizes will be awarded. The contest closes on March 15. Sons and daughters of master plumbers are excluded from the contest.

Mrs. F. R. Fanning is general chairman of the competition. Her committee consists of Mrs. T. H. Thompson, Mrs. H. B. Perryn, Mrs. L. R. Sheffield and Mrs. F. H. Inschoe.

Kansas City Charity

The Kansas City, Mo., Women's Auxiliary held their eleventh gathering of new garments for the Needlework Guild at the home of Mrs. Hornbrook on November 8. A check for the shoe fund was received from a master plumber. The garments are given to maternity hospitals, orphans' homes, and schools.

Birthday Party

The Women's Auxiliary of the San Francisco, Calif., Master Plumbers Assn. celebrated the 40th year of its existence recently with a luncheon and entertainment. Twenty-four ladies attended the luncheon at Solari's. An afternoon's entertainment at the Curran Theatre, where the members saw Noel Coward's production, "Tonight at 8:30," followed. Luncheon arrangements were made by Mrs. William J. Monihan, while Mrs. Alexander Coleman directed the theatre party.

Mrs. Liss Entertained

Mrs. Robert Liss, past national president of the Women's Auxiliary, was entertained by the Cincinnati, Ohio, Women's Auxiliary recently. She had made a visit to relatives in Louisville, Ky., and stopped off in Cincinnati.

The ladies entertained Mrs. Liss at two luncheons, one in the Netherland Plaza Hotel and the other in the Hotel Sinton. Mrs. George Doench, national auxiliary president, gave a dinner in her home for Mrs. Liss.

St. Petersburg Dinner

The auxiliary of the St. Petersburg, Fla., association held a birthday dinner recently in honor of Mrs. Charles Hancock and Mrs. William Cameron. The dinner, which the husbands also attended, was given at the Little Bohemia Restaurant. The practice of holding birthday dinners was originated about a year ago and has proved an enjoyable and effective way of holding the members together. Other Florida auxiliaries have adopted the custom.

The St. Petersburg Women's Auxiliary meets weekly on Monday at the K. of P. hall, which is also the location of the master plumbers' meetings. The first and third Mondays of the month are devoted to business. The second and fourth meetings are social; supper or refreshments are generally served.

N. Y. World's Fair

Under construction by the New York World's Fair Corp. are ten miles of sanitary sewers, twenty miles of storm water sewers and fifteen miles of water mains. To eliminate drainage of storm waters into the park area from the high ground on either side, the city is building two great trunk sewers.

The city also has started work on a series of projects designed to clean up the waters of Flushing River and Bay. The North Beach screening plant will be enlarged at a cost of $380,000, and construction of a new $4,000,000 sewage treatment works has been begun on Tallman Island. Work is in progress on a $2,000,000 system of trunk and intercepting sewers which will link these improvements with existing sewer systems.

California Event

Visiting ladies at the recent Pacific Coast Plumbing Inspectors Assn. convention in San Diego were entertained by a motor trip to the near-by (San Diego) U. S. Naval Training Station, where they witnessed a regimental review. On Friday they enjoyed a boat trip around scenic San Diego Bay, and Saturday they made an excursion over the border into Mexico. Saturday evening was a gala occasion, when well over 100 members, their families and guests attended the banquet which was featured by dancing and a floor show.

Fox River Elects

Ben C. Shimek, Appleton, was elected president of the Fox River Valley Sanitary Club at a meeting held Nov. 10 in Green Bay, Wis. F. L. Haertl, Neenah; Kurt J. Zentner, Oshkosh; H. A. Nelesen, Manitowoc; David D. Holler, Sheboygan; Clarence Fenner, Fond du Lac; Arnold Meyer, Algoma and H. E. Scheinert, Marinette, were named vice-presidents, while George Kispert, Green Bay, was elected secretary and treasurer and Noble P. Janelle, Green Bay, business manager. The association will operate a full time office in Green Bay with Janelle in charge.

Mountain Week-End

A group of master plumbers and their wives from Philadelphia spent a recent week-end at Cresco, Pa., in the Pocono Mountains. John Nagele, James McStay and William Frey were in charge of arrangements for the function, which is an annual affair.

Philadelphia plumbers and their wives at a week-end picnic at Cresco, Pa.

Recognition

Over Radio . . . In Newspapers . . . Thru Magazines . . .

Through all lines of mass-communication to an audience of millions goes the serial-story of our industry's accomplishments. Newspaper items describing the rising sales curve impress the public favorably toward our industry. Illustrated magazine articles show how present-day plumbing and heating equipment leads to better living. A sound film tells more graphically than printed word the advantages of running water and modern plumbing on the farm. All three types of recognition, or favorable publicity, awaken people's desire to emulate, predispose the public to buy our industry's products and services.

Running Water

- *New sound-slide film shows dramatically the advantages of running water on the farm*

A new, fifteen-minute sound-slide film called "Life in the Country" is an effective sales aid in developing prospects for running water installations. It was produced by the Electric Water Systems Council in cooperation with Edison Electric Institute.

The film is designed primarily for rural use. It shows convincingly that a water system is not expensive, that the hours it saves for other duties and the back-breaking toil it eliminates make it well worth while, and that the increased income from poultry, eggs, milk, livestock and garden is worth many times the cost of installation.

The film tells the story of two brothers. One, John Freeman, is a progressive farmer who has equipped his home with running water The other, Harry Freeman, does without running water because he considers it an expensive luxury. John Freeman and his wife visit Harry. From the simple fact that the pail in the kitchen is empty when John's wife wants a drink of water, there develops a complete story, step by step, in which John points out to Harry the many advantages and economies he will gain by installing a water system.

The film is described in a release by Plumbing and Heating Industries Bureau.

Prices are Lowest

- *Newspapers throughout the country print the facts on present plumbing and heating prices—Include this data with sales statistics of our industry*

Increasing acceptance of the fact that plumbing and heating prices are low in comparison with all commodities in general and other building material prices in particular is shown by the many newspaper articles which give correct information on the cost situation along with statistics on sales by our industry. From the Hartford (Conn.) *Times:*

"During the first eight months of 1937 plumbing and heating sales gained 21.6 per cent over the same period of last year, according to figures just released by Domestic Engineering.

"These figures are based on reports from 96 key wholesalers throughout the country. . . . In the New England states the industry gained 20 per cent for the first eight months this year over 1936.

"The release also finds that the level of plumbing and heating prices is not only below that of general building materials but is considerably below the level for all commodities as well. The present plumbing and heating dollar is worth $1.27 as compared to 1926, while the general building material dollar is worth $1.03."

The cost angle is brought in effectively, too, in many stories whose main theme is the beauty of present-day fixtures. From the Detroit *Free Press:*

"No part of the interior of a house dates it so definitely as the bathroom. In the style and design of the plumbing fixtures, in decorations and accessories, in the arrangement of the room, its size and location in the house, yes, even in its lighting, bathroom styles have changed tremendously in recent years.

"The old-fashioned bathroom gives the entire house such an out-of-date tone that its sales value is materially decreased, to say nothing of the inconvenience and drabness of out-moded plumbing fixtures. For these reasons a home-owner will find it is to his advantage to modernize the bathroom, particularly today when plumbing fixtures still are selling for 10 per cent less than the base price of 1926 and are below the average for the last twelve years.

More Bathrooms

● *Newspaper stories explain two and a half bathroom idea—Show that larger piping is necessary—Indicate advantages of consulting a plumbing expert*

Two series of releases by the Plumbing and Heating Industries Bureau exert an influence favorable for what are sometimes called "plus" sales. They are aimed primarily not to increase the number of customers, but rather to make better customers who use a larger volume of our industry's goods and services. One of the releases in the first series, as used in the Louisville (Ky.) *Courier-Journal* is quoted here in part:

" 'Two and a half bathrooms' is a phrase being used quite generally in connection with the houses now under construction or being modernized. . . .

"The 'half' refers to the first floor washroom which has within recent years been accepted as a necessity for the standard two-story house. . . .

"The first floor washroom is usually located off the front hall where it is easily accessible to guests as well as the occupants of the house. There are only two plumbing fixtures in the typical 'lavette'—the lavatory and the closet. Colored fixtures in brighter shades offering decided contrasts are in good taste. . . .

"Inasmuch as the room is used as a powder room by guests, a lavatory with a wide shelf for toilet articles is particularly appropriate. . . .

"The strictly utilitarian bathroom of yesterday has given way to a room of beauty and even luxury, yet a beauty that is practical in every detail. Available for the bathroom in the new house as well as the bathroom of the old house that is to be modernized are new and more beautiful and colorful plumbing fixtures in tastefully matched sets; improved showers, faucets and valves; quiet closet fixtures; handsome medicine cabinets and accessories; new lighting fittings that provide shadowless illumination, and a wealth of new and improved materials for the walls and floor."

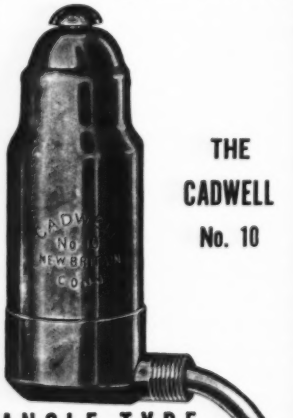
Some of the releases in the second series tie-in with items similar to the one quoted above. If more bathrooms are installed, for example, an augmented piping system is necessary. Many newspapers in all sections of the country have mentioned this fact. The *Chicago Herald and Examiner* says:

"The modernization of the piping system by the installation of pipe of larger diameter is advisable in many buildings. Pressure pumps should be installed if added pressure as well as increased volume is needed."

The tie-in is complete when the home-owner is advised to call upon a reputable firm when planning modernization or new building. Says the St. Paul (Minn.) *News:*

"The services of an experienced plumber are essential in constructing or modernizing a home. The finest plumbing fixtures can not give adequate service unless they are correctly installed and unless the supply, waste, and vent piping in the walls and under the floor is correctly designed and properly installed.

NOW . . . AVAILABLE WITH *Adjustable* PORT



THE CADWELL No. 10

ANGLE TYPE THERMOSTATIC AIR VALVE

Completely thermostatically controlled. Simple in action yet positive. Furnished also in bottom outlet type, ⅛" and ¼" and ¾" x ⅜" sizes. *Available either with or without adjustable port.*

VITAL *to the* BALANCED SYSTEM

In order to completely balance the heating system certain functions must be performed by the air valve. One of the most vital of these is to effect equal distribution of heat to *all* the radiators. The CADWELL No. 50 Vacuum Air Valve with its adjustable port feature has an established reputation for performing this function effectively. And now, this efficient adjustable port feature has been incorporated in the CADWELL No. 10 Thermostatic Air Valve. Used successfully in past years by heating men the country over as a non-adjustable type valve, the addition of the adjustable port feature to the No. 10 facilitates its broader use. Specify Air Valves of proven quality! Order CADWELLS from your wholesaler *today!*

NOW READY!

New catalog completely describing our entire line of plumbing and heating specialties is now ready! Send for yours today.

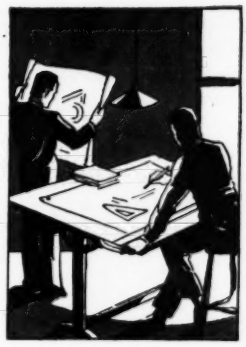
THE CADWELL No. 50

ANGLE TYPE (DIAPHRAGM OPERATED) VACUUM AIR VALVE

Effects equal distribution of heat to every radiator on the one pipe system. Also available in bottom outlet type, ¼" and ¾" x ⅜" sizes. *Made with adjustable port.*

The BEATON & CADWELL MFG. CO. *Established 1894* NEW BRITAIN, CONN.

We also manufacture a complete line of heating specialties including the CADWELL No. 45 unit for Hot Water Heating Systems, CADWELL Relief Valves and PERFECTION Floor and Ceiling Plates.
All are sold only through regular wholesale channels.



Questions

Domestic Hot Water . . . Relief Valves . . . Pipe Drainage . . .

Domestic Hot Water

- *A suggested method of connecting three heaters on separate floors and an indirect heater in the basement are discussed for this reader*

To the Editor:

In Fig. 1 is shown a sketch of a hot water system which I have just completed and which has not yet been tested out. However, I would like your opinion of the

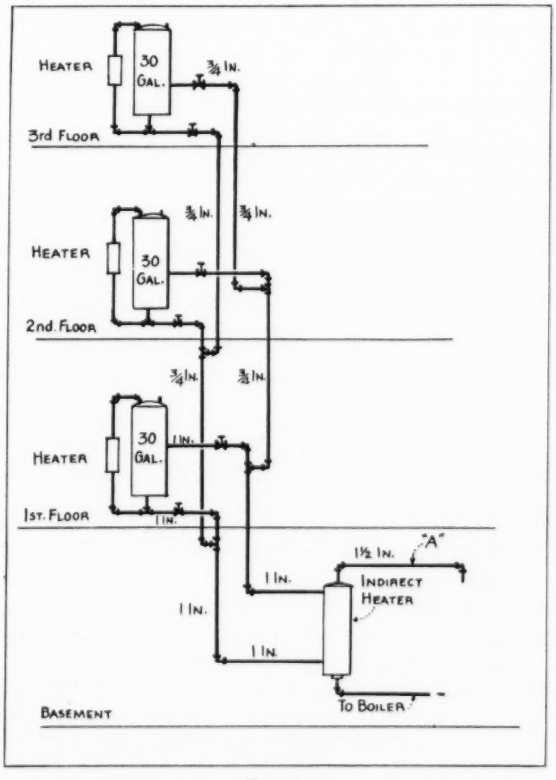


Fig. 1

installation; so that I can make any necessary changes before the system is tested.

What do you think about the arrangement and are the pipe sizes right? Will there be any danger of a cross circuit when water is used from one boiler and not from the other two boilers?

Nova Scotia. A. L. C.

To the Reader:

On looking over your sketch we note that you have arranged the flow connections from the indirect heater to the tanks with the connection or branch to the upper tank taken off below the connection to the lower tank in each instance; this is in accordance with good practice with the idea of favoring the circulation to the lower tanks where the circulation head is the least. On the return from the tanks to the indirect heater you have employed the same type of connection. This is not usually done and is liable to defeat the effect of the arrangement on the flow side due to the higher velocity circulation from the tank above entering the side outlet of the tee and the possibility that this will tend to cut off the flow of return water from the lower tank. We believe that this return connection would be improved by bringing the return from the top tank directly down in a straight line and having the return from the lower tanks enter through a tee in the manner shown in Fig. 2.

PIPE SIZING

As far as pipe sizes are concerned we believe that you would get a more equalized circulation to all tanks if you made the flow and return lines from the indirect heater to the lowest tank 1 in., from the lowest to the middle tank ¾ in. and from the middle to the top tank ½ in.; this also has been indicated in Fig. 2. We assume, of course, that the indirect heater is of sufficient capacity to supply all three tanks.

You also indicate that the indirect heater is set so as to be about half under the water line of the boiler and half above. In this connection we would point out that there are many days in the winter season when steam will not be required all day and on some days it may be shut off altogether; in this event the indirect heater will stop supplying hot water as there will be no flow through the heater from the boiler except at such times as there is steam on the boiler. We believe that it would be better to locate the indirect heater below the water line of the boiler and—if this is done—it will be necessary to eliminate the air pocket at "A" in the top

Easy To Understand Features

YOU DON'T HAVE TO BE AN ENGINEER TO UNDERSTAND WHY THE WATERFILM BOILER DOES SUCH A GOOD JOB
Features:
● Economy
● Quick Heat
● Sustained Heat
● Beauty
● Compactness
● Quality Welded Steel Construction
● Plenty of Domestic Hot Water the Year 'Round

of the KOVEN WATERFILM BOILER *mean Quick Sales For You*

If you can give your prospects a simple, clear, concise description of a boiler—one that they can understand—you've gone a long way toward convincing them and making a sale.

The KOVEN WATERFILM BOILER gives you just such an opportunity. When you say that Quick Heat is obtained because the generators (containing a small volume of water) are placed above and at right angles to the combustion in order to obtain maximum heat, you can illustrate this principle by showing prospects the candle test. That tells the story simply and convincingly. They can also understand why the remaining large volume of water in the boiler sustains heat longer. By combining Quick Heat and Sustained Heat they can easily appreciate why the KOVEN WATERFILM BOILER gives such an efficient, economical heating performance.

Stress the simplicity of the WATERFILM BOILER'S operating features when you talk to your prospects. It means surer, quicker sales for you.

Write today for further information and catalog.

WATERFILM BOILERS, INC.
154 Ogden Ave. Jersey City, N. J.
A KOVEN PRODUCT

connection to the boiler which is shown on your sketch. If you are sure, however, that the boiler will have steam on it at all times we see nothing wrong with the indirect heater connection as you have shown it.

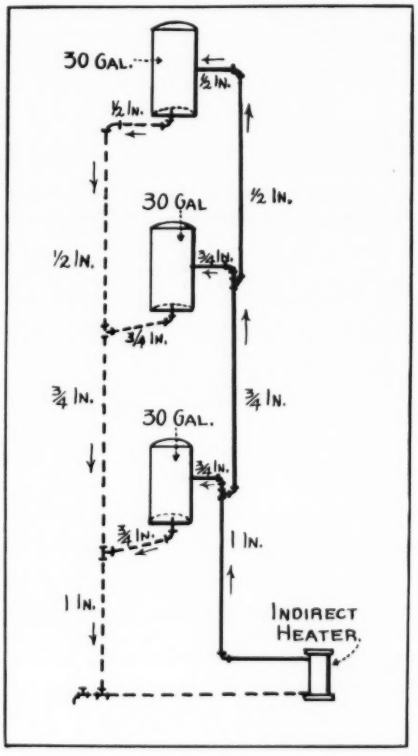


Fig. 2

With the control valves which you show on the circulation connection to each tank it may be possible for you to adjust the flow to each tank so that the pipe sizes need not be changed nor the connections altered; if you are unable to do this to satisfy the owner the above suggestions might be tried out.

Radiator Location

● *Discussed here are the various factors that affect the proper location of radiators in relation to windows*

To the Editor:

I should like to have your opinion and views on setting radiators on the inside walls if the amount of radiation has been figured by the Btu. method and is adequate. Will they heat successfully and if not, why not?

Ind. B. F.

To the Reader:

You can heat and heat successfully with radiators on the inside walls but you will do a better job by placing them under the windows. The reason for this is shown

in Fig. 3 and Fig. 4 where in Fig. 3 the approximate air movement in a room heated by a radiator on the inside wall is shown and in Fig. 4 where the air movement for a room with the radiator under the window is illustrated. It will be noted in comparing these two air flows that the radiator on the inside wall causes the heated air to rise to the ceiling, pass over toward the window, and drop along the window due to the cooling effect of the glass and the cold air leaking in from the outside around the window.

The radiator on the outside wall, especially if under the window, will reverse the air flow causing the air heated by the radiator to flow up against the downdraft from the glass not only warming this cooled air but dissipating it out into the room and not onto the floor.

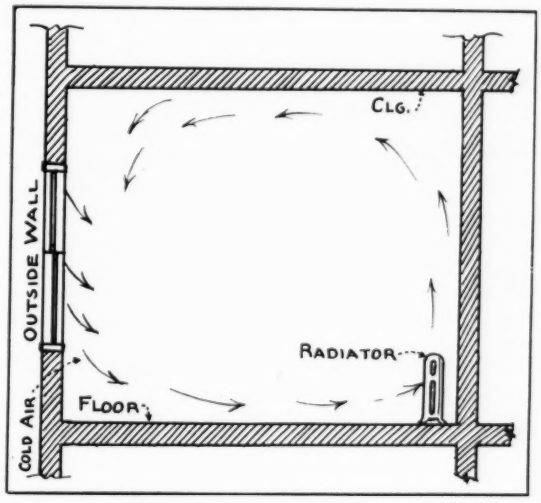


Fig. 3

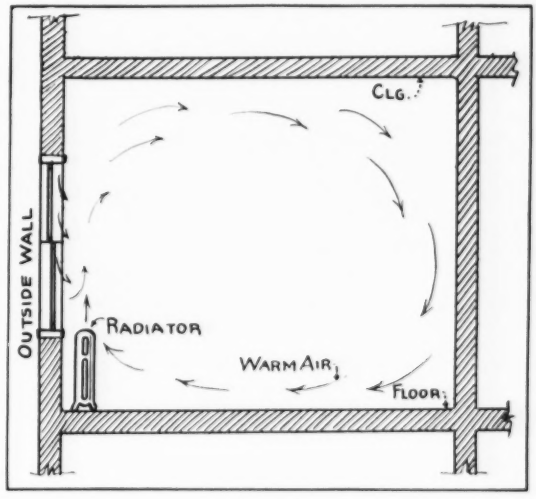


Fig. 4

ANNOUNCING THE
BURKS
Super NIAGARETTE Series of
WATER SYSTEMS for 1938
"ONLY ONE MOVING PART"

- Quietest Water System in Burks history
- Complete range of sizes and capacities
- With storage tanks, 4 to 315 gallon capacities
- Complete series available as independent pumping units
- Pumping unit rubber mounted on base
- Pumping unit and storage tank, flexible rubber connected
- Lifts water 28 feet at sea level
- Three point suspension base
- Fresh water check valve at slight extra charge
- Completely automatic—Self priming
- Largest hourly pumping capacities
- Compact, requires small space

PRICED FAR BELOW THE STANDARD OF QUALITY AND PERFORMANCE ON WHICH BURKS PUMPS ARE BUILT

Dealers who adopt and aggressively promote the sale of BURKS Super Niagarette Water Systems in 1938 can look forward with confidence to a profitable year in Pumps.

Complete information supplied upon request from Jobbers and Dealers.

DECATUR PUMP COMPANY • Decatur, Ill.

Shown above is only one of the several units of the Super Niagarette series. Figure A 3C-42 with 42 gallon fully galvanized storage tank, 1/4 H.P. motor and with 360 G. P. H. pumping capacity.

LOOK INTO 1938

—and you'll KNOW why Gardner-Denver Centrifugals will be needed

NOW is the time to look into the demands that 1938 will make on centrifugal pumps. Will the pumps you handle be adequate to carry 1938's business?

NOW is the time to find out why the high quality and experienced engineering built into Gardner-Denver Centrifugal Pumps set a standard for the BEST in pump manufacture.

NOW is the time to find out why Gardner-Denver Pumps — "tomorrow's pumps, today" — will be bringing efficiency, power savings, and low maintenance costs to forward-looking users in 1938.

NOW is the time to investigate the profit possibilities of Gardner-Denver Centrifugals— to find out why they can build your pump business in 1938. Write for full details.

GARDNER-DENVER CO. • Quincy, Illinois

SINCE 1859

GARDNER-DENVER

Thus the radiator on the inside wall is liable to produce cold floor draughts while the radiator under the window will—to a large extent—prevent such drafts. In either case a temperature of 70 deg. Fahr. can be maintained in the room.

Relief Valves

• *This reader wants to correct a condition where a relief valve operates too often*

To the Editor:

Will you please advise us as to what is the best way to install a boiler relief valve. Our present heating system requires 22 lb. pressure and at that pressure the valve is operating all of the time that the oil burner is on. We would appreciate having your comments as to how we can cure this condition.

Ont. B. J.

To the Reader:

If you have no expansion tank on the system there will be a small amount of leakage from the relief valve when the temperature of the water is being increased, due to the expansion of water as it reaches higher temperatures.

This leakage should only occur during heating up periods and if your relief valve is operating as you state "running all the time," it must be caused either by having the valve set to relieve at too low a pressure, something under the valve seat which prevents the valve closing tightly or a defective relief valve. We suggest that you set the valve to relieve at 25 lb. gauge, which is alright for hot water, and then when you have only 22 lb. on the system everything should operate in a satisfactory manner.

WARMING UP PERIOD

When the water is warming up there will be an increase in pressure up to 25 lb. when a small amount of water will be allowed to escape through the relief valve but this will stop as soon as the water has reached its maximum temperature. If a control is desired it should be of the variety arranged to stop the oil burner as soon as the maximum water temperature is reached. Usually this is around 200 deg. Fahr.

Pipe Drainage

• *An unusual problem confronts this reader—draining the water pipes of a group of houses*

To the Editor:

We have been called upon to shut the water off in a large group of houses in preparation for the winter. A number of these houses are trapped in such a manner that it is impossible to remove all the water by just draining the pipes. We have recommended the use of a small compressor with an auxiliary air tank, so that enough pressure could be put on the lines to force all the

excess water out. Do you think that this idea is feasible and how would you make the connections?

N. J. L. A.

TO THE READER:

Your suggestion in regard to the use of compressed air seems to be the most practical method of blowing out trapped water in the water supply lines provided this piping can be tapped on the street side of the trap and the water blown out of an outlet or tee cut into the line on the house side of the trap. We would suggest starting with a pressure of around 20 lb. or so until all of the water apparently is blown out and then shooting 40 lb. or higher air through the line to be sure that there is no water left.

USING COMPRESSED AIR

We believe the best method for you to use would be to secure an air compressor such as is used for pneumatic tools in cutting up street paving and to connect this to a storage tank of 200 or 300 gal. capacity with a pressure reducing valve on the outlet of the tank set for 20 lb. or whatever pressure you may decide to use for the preliminary blow out; back of this pressure reducing valve a tee may be used to run through a globe valve and back into the air line beyond the reducing valve thus forming a bypass for the reducing valve. When air is used through the valve 20 lb. will be obtained but when used through the bypass for the final blow the full air pressure will be shot into the line. If you can blow through the line with your breath after using the compressed air this will prove that all of the water has been driven out.

Questions For READERS

Many correct answers were received in reply to the Reader's Question which was asked in the October issue of DOMESTIC ENGINEERING. The following reply, however, was selected for its thoroughness. The question was:

A steam heating system operating at 1 lb. gauge pressure is supplied with steam from a steam line at 100 lb. gauge pressure through an ordinary type of reducing valve; what will be the temperature of the low pressure steam at the outlet of the pressure reducing valve and how many degrees of superheat will be present?

According to steam tables, steam at 100 lb. gauge pressure has a total heat content of about 1189 Btu. and, when this steam is passed through a pressure reducing valve the total heat is neither added to nor diminished in quantity to any appreciable extent. Consequently on the low pressure side there will be an excess of heat over that required for the 1 lb. steam at saturation. Again turning to standard steam tables it will be found that steam at 1 lb. gauge pressure and saturated will have a total heat of about 1151 Btu. As a result the

Hank Hands You A Handful From A-to-Izzard

WHEN you wuz a kid, did you play hop-scotch? You know, that jumping on one foot, from one chalk marked out spot to another, without landing on any mark.

Sometimes get to wondering, if most grown up folks really are grown up, the way they keep on playing hop-scotch with their buying. They buy a boiler here, some radiation there. Then send way off somewhere else for some valves, and maybe further yet for a hunk of other things.

They jump all over the map buying things from no end o' different outfits, when right near to hum more'n likely, they could get 'em all from one or two—and maybe only one concern.

When they are that smart, orders, shipments, bills, delays, everything, are cut down. There's a lot less "what-the-Helling" over the 'phone because something hasn't come. Or maybe too, something that never ought to have come, that has.

Here lately—and long before that even—a lot of dealers must have got their eye-teeth cut. Such must be so, or they wouldn't be coming so much to us for most things they are wantin'.

But be that as it may, we seem to be a-selling 'em pretty much everything from A-to-Izzard. Meaning everything from air valves to boilers and all the way back again. Am saying all which thinking you might want to check up on your eye-teeth.

Hank Hindle

See our Display in Booths 233 and 234 at the Heating and Ventilating Show, Grand Central Palace, New York City, January 24th to 28th, inclusive.

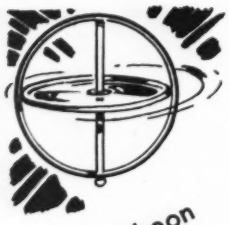
Burnham Boiler Corporation

Manufacturers of Heating Equipment Since 1873

Irvington, New York; Zanesville, Ohio

Export Department, 116 Broad St., New York

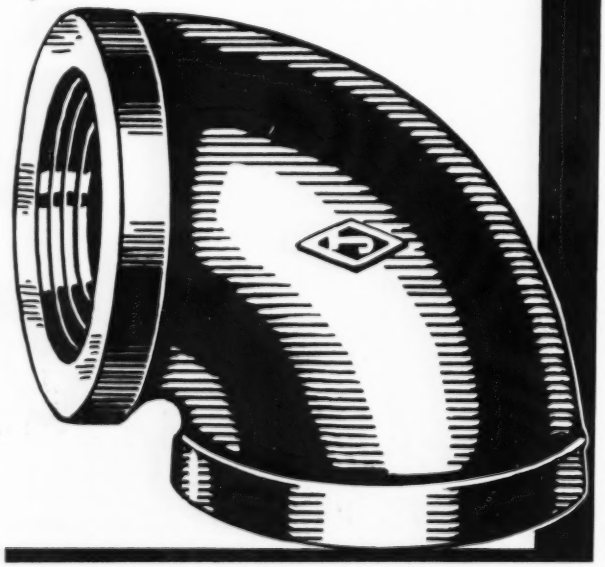
Burnham Boiler



●In 1852 Leon Foucault of France used a new scientific toy — the gyroscope—to demonstrate the rotation of the earth. That same year Jarecki produced its first fittings. The gyroscope is no longer a toy, but has become an instrument for dependability in transportation —just as the Jarecki mark has become a symbol of dependability in fittings. ADDED STRENGTH and DEPENDABILITY means an EXTRA measure of VALUE.

JARECKI FITTINGS

JARECKI MANUFACTURING CO., Erie, Pa.



steam coming through the pressure reducing valve will have an excess of heat over common saturated steam at 1 lb. gauge of about

1189 Btu. minus 1151 Btu. or 38 Btu. per lb.

and this heat results in superheating the low pressure steam.

While the specific heat of steam varies somewhat, it is common practice to use 0.48 in this connection indicating that it only requires 0.48 Btu. to raise 1 lb. of steam 1 degree where it would require 1 Btu. to raise 1 lb. of water 1 degree. With 38 Btu. per lb. available for superheating and requiring only 0.48 Btu. per degree to superheat the steam, it follows that the amount of superheating which will be done will be in the neighborhood of

38 Btu./0.48 or 80 degrees (almost).

Therefore the number of degrees of superheat which will be present in the 1 lb. steam will be slightly less than 80 degrees.

SUPERHEATED STEAM

The temperature of superheated steam is always the temperature of saturated steam at the same pressure plus the number of degrees of superheating which in this case is almost 80 degrees. Referring to the steam tables for the final time to find the temperature of 1 lb. steam when saturated it will be noted that this is about 215 deg. Fahr.

Therefore, if this saturated steam is heated 80 degrees above the saturated temperature the temperature of the steam at the reducing valve outlet will be

215 deg. Fahr. plus 80 deg. Fahr. or 295 deg. Fahr.

THERMOSTATIC TRAPS

The use of superheated steam in installations where thermostatic traps are installed is liable to damage the traps.

Possible ways of overcoming this difficulty are, one, to allow sufficient length of pipe run—possibly uncovered pipe if necessary—to permit the heat radiated from the line to equal the Btu. of superheat before the steam reaches the radiator, and the other, to use a desuperheater which adds water to the steam after it leaves the pressure reducing valve so that the steam at once evaporates sufficient water to bring it down in temperature to that of the saturated temperature—215 deg. Fahr.

How Would You Answer This Question?

A suitable answer will be paid for and published in the February issue of DOMESTIC ENGINEERING. Answers are judged upon manner of presentation as well as their correctness.

A house tank 10 *ft. x* 10 *ft. in area has a float switch set to start the house pump when the water in the tank falls* 24 *in.*

If the house service from the tank is drawing off water at the average rate of 50 *g.p.m. and the house pump has a capacity of* 75 *g.p.m. how long a period will the house pump operate?*

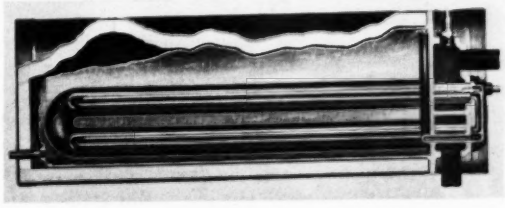
PRODUCTS *for* DEALERS

Tankless Heater with Reservoir

The tankless, indirect water heater shown in the illustration has just been announced. It is intended for use on hot water boilers, steam boilers, or placed above the water line in live steam.

A typical summer operating cycle is described as follows: With boiler water and water in the heater at 70 deg. Fahr.—the burner starts and operates until hot water circulating from the boiler has heated the water in the heater to the pre-determined temperature. The burner is then shut off by the limit switch in the heater itself, but hot water continues to rise into the heater, using heat which would normally be dissipated as standby loss. City water fills the reservoir surrounding the tubes and is preheated before passing into the copper tubing and passes through two series of these tubes before going to the fixtures. In other words, the reservoir provides a reserve supply of hot water, it is indicated, and the copper tubes act as instantaneous heaters if a long, steady draw depletes the water in the reservoir.

This new heater is announced by Bell & Gossett Co., 3000 Wallace St., Chicago, Ill.

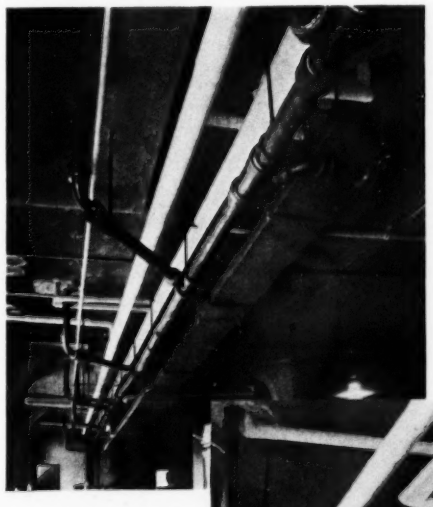


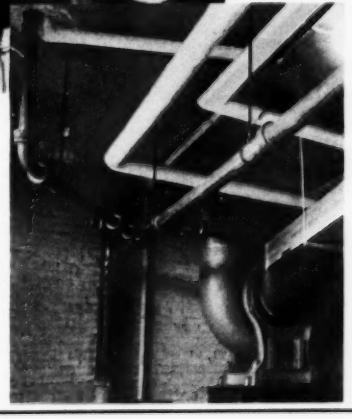
Tankless Domestic Water Heater with Reservoir

Motor for Deep Well Pumping

Described as having been recently improved, the motor shown in the accompanying illustration has been designed for use in deep-well pumping service.

Among the many improvements listed for these motors are a simplified oiling system in which the oil housing is located in the top end shield and is divided into two parts by a cylindrical wall which supports the outer race of the thrust bearing. An inner compartment, containing the thrust bearing, is described as being connected to the outer by a small metering hole protected by an oil screen. The oil gauge is so arranged, it is indicated, that when full, the oil level is even with the top of the balls in the thrust bearing. When the motor is at rest, oil flows into the inner bearing cavity, it is pointed out, until the oil level is equal to the height of the oil in the outer compartment, thus flooding the bearing and protecting it from rusting in idle periods. As soon as the





Duriron acid draining and ventilating system shown suspended above paper storage room.

At the right is a close-up view of the Duriron exhaust fan shown in the distance above.

When Acid Drains are Overhead

There is a large Chemical and Testing Laboratory on one floor, a stock room with tons of paper and valuable printed matter on the floor below it. Any leakage of the Laboratory drains will cause great loss.

Duriron Drain Pipe was selected because it is safe, sure and easy to install. The joints, caulked with asbestos, are acid-proof and leak-proof.

A No. 500 Duriron exhaust fan was installed to pull fumes from five Cornell-type hoods through a duct of Durimet.

Duriron is easy to install under all conditions. Joints stay tight. Acids cannot eat away or corrode the drains, as Duriron is acid-proof *all the way through*.

For safety and satisfaction in handling acid wastes, Duriron Drain Pipe, Fittings and Laboratory Equipment have no substitute. Stocks ready for immediate delivery.

THE DURIRON COMPANY, Inc.

409 N. Findlay St. Dayton, Ohio

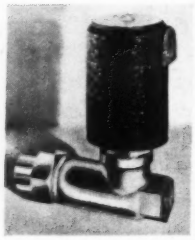
DURIRON
ACID PROOF
DRAIN PIPE

motor starts to rotate, the pumping action of the ball bearings begins to clear the inner housing of excess oil and by the time full speed is reached, the rate of lubrication is regulated by the flow of oil through the metering hole.

Double end ventilation is another of the listed features of the motor.

This new motor is announced by General Electric Co., Schenectady, N. Y.

Pump Motor



Control Valve

Electric Control Valve

The valve shown in the accompanying illustration has just been announced. It is designed to control steam, air, water, gas, oils as heavy as No. 6, and refrigerants.

The method of operation of the valve is described as follows: Closing with the flow, the line pressure adds to the seating pressure, thus effecting a tight closure. Positive opening is attained by the use of a highly powered solenoid and an improved lever action, which is listed as developing a great amount of power. This feature is indicated as insuring satisfactory operation on high pressure air, gas or water lines up to 140 lb. or steam up to 125 lb. pressure.

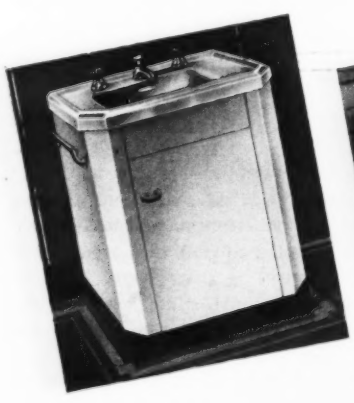
Other listed features of the valve are: removable solenoids; waterproof coils; rotating terminal connection to aid in wiring; tinned body; and black crackle finish solenoid.

These new control valves are announced by General Controls Co., 267 Fifth Ave., New York City.

New Heating Control Cabinet

Developed recently and just announced is the control cabinet shown in the accompanying illustration. It has been designed to give building operators "touch control" over building heating systems.

By setting a dial for the prevailing outdoor temperatures once or twice a day, it is indicated the building operator can supply exactly the right amount of heat to all radiators to keep every section of the building comfortably warm. The control—designed to deliver steam continuously to all radiators—keeps radiators fractionally filled when less heat is required, thus eliminating wasteful overheating during mild weather, it is pointed out, and uncomfortable underheating during colder weather. The dial shown at the upper left in the illustration, takes care of special conditions. The manufacturer indicates



Space to Spare

When floor space is limited . . . when regular storage space is at a premium . . . when compactness, convenience and attractive appearance are definite requirements . . . these three sparkling lavatories are ideally suited to the job. Ample room is available in the unusually spacious compartments for virtually every bathroom necessity, yet these fixtures are neither bulky or unwieldly. Four inch legs provide plenty of toe room and space for cleaning. No bathroom is too small to accommodate these three popular lavatories . . . there's always space to spare. You'll find they appeal from every standpoint. Write for further descriptive data on these and other items in the United States line.

THE DISTINCTIVE ENAMELED WARE FOR THE DISCRIMINATING CUSTOMER

THIS SHIELD IS YOUR PROTECTION

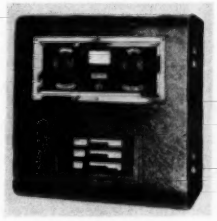
Left to right above: COLONA D-3576 . . . WELDON D-3574 . . . NEWPORT D-3622. Each fixture measures 24 x 20". Each incorporates roomy cabinet feature. Beautiful chrome fittings and towel bars add to attractiveness. Each is styled in the modern manner.

United States Sanitary Mfg. Co.

GENERAL OFFICES: PITTSBURGH, PENNSYLVANIA

when the dial is advanced, it provides for rapid heating-up and when it is retarded it adjusts the steam for reduced night heating. An operating schedule specially worked out for each building is provided on the front of each cabinet, according to the announcement.

Warren Webster & Co., Camden, N. J., announces this new heating control cabinet.



Control Cabinet

Propeller Fan

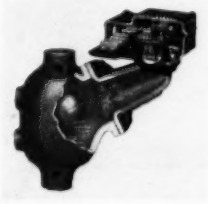
Four Blade Propeller Fan

The four blade propeller fan shown in the illustration has just been announced. It has been designed to render high efficiency and give quiet operation.

It is indicated these fans are built with four curved steel blades of large area set at an angle of 30 degrees with the plane of rotation. The curvature of the blades is so formed to insure the leading edges entering the air stream without shock. Their wide tips are designed to provide for the gradual acceleration of the air particles, so essential, it is pointed out, where quiet operation is to be attained. They may be used, according to the announcement, in unit heaters, unit coolers, evaporative condensers, and other apparatus requiring relatively large volumes of air at moderate pressures.

These new propeller fans have been announced by The Trane Co., LaCrosse, Wis.

At the Right Is Shown a New Boiler Water Level Control



Boiler Water Level Control

The boiler water level control shown in the accompanying illustration has just been announced as an improved piece of equipment.

It is indicated the control is suitable for use with either high or low pressure boilers and has three functions listed for it: first, as a pump control; second, low water cut-off; and third, low water alarm circuit. The unit is produced in one size and is rated for any working pressures up to 150 lb. per sq. in. gauge. Bowl casting and nosepiece are described as being made of high test grey iron with heat dissipating fins on the nosepiece, and

EXTRA PROFITS NOW

EXTRA ORDERS LATER

You assure yourself of both when you install Whitehead* Monel Range Boilers and Heaters

YOU want to make all the extra profits you can—of course. Do you know you can make *good prospects for future business* at the same time? Whitehead Range Boilers and Automatic Gas Storage Water Heaters assure you of both. Here's why:

Home owners know Whitehead Monel tanks—know they're *guaranteed* for twenty years. Both Whitehead and Monel National Advertising are telling the story of this durable, long-life metal to millions of readers month after month.

So your customers *know* about Whitehead Monel hot water tanks. And *prefer* them, too: For they know that Monel never rusts. They know that Whitehead tanks are solid Monel, with no coating—outside or in—to chip or peel. And since Monel stoutly resists corrosion, your customers realize that its toughness and strength is good for years. And *you* know a satisfied customer is good for more business.

Lots of folks not far from your shop need a new range boiler or an automatic storage water heater. Why not go after each order, and make the job a Whitehead? You'll be a winner two ways: one more extra profit, and one more satisfied customer (one less, incidentally, for a competitor). Write us for more information. Ask also for literature to enclose with bills and hand to prospects.

Household Division

WHITEHEAD METAL PRODUCTS CO. OF NEW YORK, INC.

304 Hudson Street * Reg. U. S. Pat. Off. New York, N. Y.

LET'S STOP THESE
"Hold-ups"

Every year, corrosion — the greatest racketeer in the world — robs this country of millions of dollars. Fortunately for pipe users, a large portion of this money can be saved — by using Fretz-Moon Copper-Bearing Steel Pipe. • When you are confronted with alternate wet and dry conditions — atmospheric corrosion — and steel pipe doesn't last as long as you or the customer would like, tell him about this rust-resisting pipe made of high quality steel with which is alloyed the correct amount of copper to obtain maximum corrosion-resistance. It provides the high strength of steel *plus* the exceptional uniformity of product — size, ductility and cleanliness — made possible by the patented "continuous process" employed in manufacture. And the additional cost will be returned many times over through the longer life it affords. • Ask your jobber for Fretz-Moon Copper-Bearing Pipe, black or galvanized. If he doesn't stock it, write us.

FRETZ-MOON TUBE CO., INC.
BUTLER • PENNA.

FRETZ COPPER MOON BEARING

STEEL PIPE

with a ventilated aluminum switch cage. A metallic bellows is incorporated in the make-up of the control, thus isolating all parts of the control proper from steam or water. Other listed advantages of the control are that it has adjustable contact levels, and is mechanically foolproof.

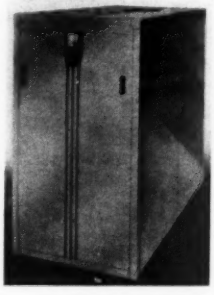
This new boiler water level control is announced by Fred H. Schaub Engineering Co., 325 W. Huron St., Chicago, Ill.

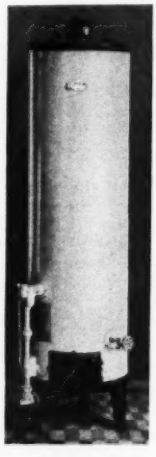
Gas Burning Storage Water Heaters

The accompanying photograph illustrates a new storage type water heater which has recently been announced. It is designed for burning either natural or artificial gas.

The boiler is constructed of double extra-heavy galvanized metal guaranteed 150 lb. working pressure. The heater is well insulated, it is indicated, with insulation 1⅝ in. thick on sides, 2 in. thick on heads and applied in such a way as to prevent settling, thus assuring thorough insulation of all radiating surfaces, according to a listing of its features. The flue is made of seamless boiler tube, with long spiral baffle which is described as effecting marked fuel saving. Other features of construction are listed as follows: Drip pan—One piece pressed, galvanized steel. Door—Large, well insulated, cast iron. Thermostat—Snap action. Jackets—Heavy gauge, coated inside and outside to prevent rust. The heater is finished in baked-on, white enamel with black trim. Other colors are furnished on special order only, it is indicated.

This new water heater is announced by Hedges-Walsh-Weidner Division, Combustion Engineering Co., Inc., Chattanooga, Tenn.





Above, Burner Boiler

Right, Water Heater

New Burner Boiler Unit

A new burner-boiler unit, in six sizes, has recently been announced. It is shown in the accompanying illustration.

In its six sizes the unit is listed as capable of handling 355 to 755 sq. ft. of standing steam or 570 to 1,205 sq. ft. of standing hot water. Indirect water heaters, circulators and low water cut-offs are indicated as

being standard equipment. The indirect domestic hot water heater has a listed capacity of 40 gal. with 100 gal. capacity available at additional cost. Another advantage listed for the burner-boiler unit is the specially designed finned surfaces in the long flue passages. These finned surfaces split the hot gases into thin streams, it is indicated, thus absorbing the maximum amount of heat into the boiler water.

These new burner-boiler units are announced by Fluid Heat Div., Anchor Post Fence Co., Baltimore, Md.

Tankless Water Heater

The accompanying illustration shows a tankless water heater which has just been announced. It is designed for use without storage tank on steam, vapor and hot water heating systems.

Tankless Water Heater

This new heater is described as being of the highest grade construction throughout, with substantial cast iron shells and coils of pure copper permanently expanded into bronze terminals. All waterways are bronze or copper, it is pointed out, and provision is made for easily draining the heater. This new heater is available in four sizes, it is indicated. The capacity of the heater in gallons of water heated from 40 deg. Fahr. to 140 deg. Fahr., with boiler water at 180 deg. Fahr. is listed as ranging from 180 gal. per hour for the smallest size to 300 gal. per hour for the largest. Shipping weight of the units range from 115 to 185 lb.

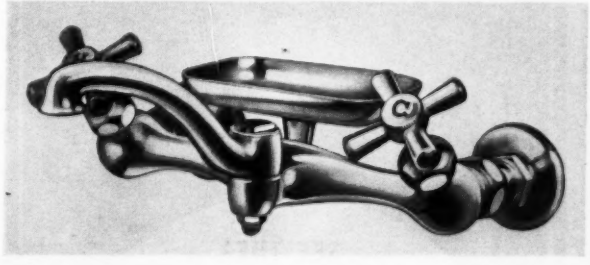
Taco Heaters, Inc., 342 Madison Ave., New York City, announces this new tankless water heater.

Modern Styling for Air Valves

The air valve shown in the illustration is typical of the modern styling which will feature the external appearance of the company's line of valves in 1938. This new model has just been announced.

The manufacturer also announces the incorporation of an improved baffle and float action in six models of its valves. It is pointed out this improvement makes a positive seal against water and prevents water spitting. Another listed feature of the line is that the take-apart construction has been improved by the introduction of an octagonal union coupling which facilitates opening the valve on the job for thorough cleaning without the use of special tools. It is indicated the special spark-

Modern Air Valve



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Thousands of staple patterns and scores of fast moving leaders like Smartcrafts above and Plus-Shower at right are catalogued. 50 years of "know how" built into every product makes satisfied customers for you.

Your wholesaler is ready to supply you with any Hays products and he will be glad to see that you get one of the complete Hays catalogues. See him soon.

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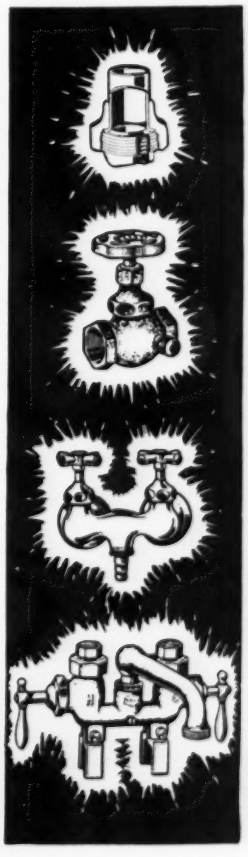
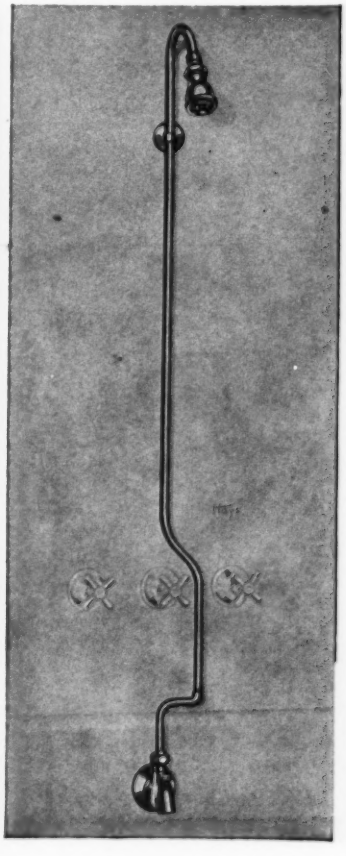




plug type copper asbestos gasket used in the the coupling insures tight joints.

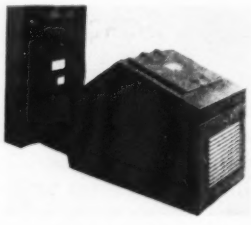
These air valves with modern styling are announced by Anderson Products, Inc., Cambridge, Mass.

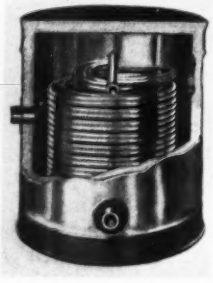
New Domestic Stoker

Shown in the accompanying illustration installed in a boiler, is a new stoker which has just been announced. It is designed for domestic use.

Five sizes of the stoker are listed as being available, with hopper capacities of 350 and 500 lb. with varying coal feeds per hour depending on the amount of heat required. Each stoker is provided with a room thermostat, one hold fire control and one limit control, as well as a clinker tong, it is indicated. Based on 5 lb. of coal for one boiler horse power, 100 sq. ft. of steam radiation and 133 sq. ft. of hot water radiation, the ratings of the stokers are as follows: Steam radiation ranges from 700 sq. ft. for the smallest size to 3,000 sq. ft. for the largest. Hot water radiation ranges from 1,120 sq. ft. for the smallest stoker to 4,800 sq. ft. for the largest.

These new stokers are announced by Crane Co., 836 S. Michigan Ave., Chicago, Ill.





Above, New Domestic Stoker
Right, Copper Water Heater

All-Copper Water Heater

Shown in the accompanying illustration is a new tankless water heater which has just been announced. It has been designed to fill the need for a smaller heater similar to the 6 g.p.m. heater now manufactured by the company.

This heater is listed as having a capacity of 4 g.p.m. and consists of an all-copper tank and an outside shell of lead coated steel. Between the tank and the outside shell it is indicated there is 1¼ in. asbestos insulation. The copper coil within the shell is listed as being ⅜ in. O. D. with 12 sq. ft. of heating surface. It is pointed out the outside shell is enameled and is furnished in colors to harmonize with any boiler jacket. It is further indicated a heater built to these specifications becomes a permanent and lifetime installation.

Gerstein & Cooper Co., S. Boston, Mass., announces this smaller size, tankless all-copper water heater.

New Information and Aids to Sales

Folder on Water Heaters

A new four page folder, printed in three colors has recently been issued by The Sands Mfg. Co., Cleveland, Ohio. The folder is devoted to a description of the company's new modernistic insulated type double copper coil gas water heaters. The piece of literature measures 3¼ by 6¼ in. Four color-combinations of the heaters are shown and a description of the insulation features of the heaters is included. A table of detail specifications is given on page four and a description of four of the features of the heater, namely burner, drip pan base, mixer, and copper coils are included.

Complete Catalogs on Pumping Equipment

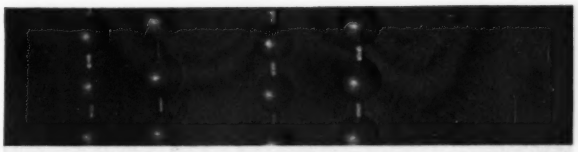
Two new catalogs have recently been issued by The F. E. Myers & Bro. Co., Ashland, Ohio. The first of these is a 368 page, 8½ by 11 in. catalog bound in a heavy pebble-grained, three color cover. It is designated as Catalog No. 70, superseding No. 69 issued a year ago. This book is complete with illustrations, descriptive material, engineering tables and price lists. The company points out, "The development and improvement in many parts of our line, new goods, necessary changes and corrections . . . . have again been incorporated into its pages." The second booklet is a companion catalog, the Myers' No. R38 Repair Parts Book containing 258 pages and is likewise described as having been brought up-to-date. All repair references in Catalog No. 70 refer to this Repair Catalog.

Heating and Plumbing Catalog

The Beaton & Cadwell Mfg. Co., New Britain, Conn., has just issued a new catalog covering its line of plumbing and heating specialties. The booklet contains 21 loose leaf pages bound in a heavy paper cover. It measures 8½ by 11 in. Among the products described and illustrated are floor and ceiling plates, air valves, relief valves, flush valves and other specialties. Each item described and illustrated is accompanied by a table which shows the various sizes available and gives the list prices of each.

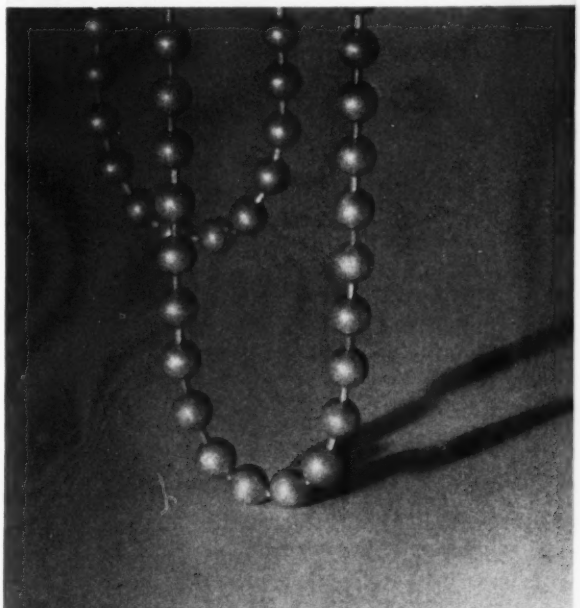
Cabinet Sinks Broadside

Just issued by Crane Company, 836 South Michigan Ave., Chicago, Ill., has been the 3⅜ by 6¼ in. triple folded broadside describing the company's line of cabinet sinks. This booklet is printed in two colors. Among the types of sinks described and illustrated are: roll rim,



Prestige

[Webster says: "Prestige—Weight, influence or force derived from past success or from character or reputation."]



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Stops 75%
of your
Pipe Wrench
Repairs
Every part of the RIGID Wrench guaranteed against break due to defective material, replaced Free. Housing unconditionally guaranteed

● Have you seen the new RIGID Wrench? Stronger and safer than ever — greater thickness of special alloy metal in the unconditionally guaranteed housing and improved design. With its chrome molybdenum alloy safety jaws and alloy handle, it practically ends your broken wrench problem and expense.

No wonder RIGID has millions of users all over the world. Replaceable jaws are slip-and-lock-proof. Handy pipe scale on full-floating hook jaw. Adjusting nut spins easily in all sizes, 6" to 60". Comfortable grip handle. End pattern for pipes against flat surfaces.

Test the RIGID any way against any other wrench. You'll like the "feel" of it, its safety, its economy. Order from your Jobber — today.

The Ridge Tool Company, Elyria, Ohio

This RIGID Wrench
Saves Man-Power

RIGID Compound-Leverage Wrench makes one man strong as six — pays for itself quickly in salvaged fittings.

RIGID PIPE TOOLS

double drainboard; apron, double drainboard; roll rim, single drainboard; apron, single drainboard; and sink and laundry combinations. Two of the illustrations show before and after views of what is described as a well-planned kitchen.

Enameled Ware Folder

Recently issued by United States Sanitary Mfg. Co., Pittsburgh, Pa., is a six-page, 5 by 7 in. folder covering recent developments in the company's line of bathroom fixtures. This folder is printed in four colors and illustrates one corner model bath and two recessed model baths. These bathtubs are shown in colors which are available in the line. Dimensions of the fixtures and a keyed number describing the position of outlets, and in the case of the corner fixture whether it is a left or right corner, is included. One of the recessed models has a built-in seat and this is likewise keyed, indicating whether the seat is at the right or at the left. Other fixtures which are described and illustrated in the folder are two cabinet lavatories, one lavatory with chromium legs and towel bars, and two lavatories mounted in concealed wall brackets.

Catalog on Centrifugal Pumps

Dayton-Dowd Co., Quincy, Ill., has issued a fifteen page catalog on its close-coupled centrifugal pumps. The booklet is printed in two colors and measures 8½ by 11 in. Uses of the pump are listed and features of design and details of construction are given. A cross-sectional drawing of the pump with keyed reference numbers is one of the features of the book. Six pages are devoted to rating tables of the pump and three pages to pump data.

"Year Around Insulation Costs You Nothing"

The above is the title of the new 24 page booklet recently issued by Kimberly-Clark Corp., Neenah, Wis. The catalog, which measures 8½ by 11 in., is printed in three colors and is bound in a separate heavy paper cover which likewise has three-color printing. An effective demonstration of the uses of insulation in nature—insulation against both cold and heat—is presented in the forepart of the book. A one-page description of the company's product—wood fibre insulation—is then given. The "meat" of the booklet is reached when the reader comes to the section which tells how to install the company's insulation in various parts of the home. Photographs, which occupy most of the page, are supplemented by the written description appearing on the same page. Typical of the description headings are the following: To Insulate Vertical Walls; Fastening the Blanket; Insulating Sloping Roofs; and Vapor Sealing. An overall drawing of a house is used to show the points of the building which should receive the attention of the owner when planning to insulate.

Folder on Round Boilers

"Case Number 12,993 Peter Parks" is the title of the ten page catalog recently issued by American Radiator Co., 40 West 40 St., New York City. This booklet measures 8½ by 11 in. and is printed in two colors. Peter Parks is the representative young American selected as the central figure in Case History 12,993. The booklet follows Peter's peregrinations and illustrates why and how he finally chose the heating equipment which he finally did choose. Descriptions of several of the company's round heating boilers are included along with tables of ratings and data for both oil fired and hand fired, steam and water boilers.

Fourth Annual Institute Report

Containing 169 pages, the report of Refrigeration & Air Conditioning Institute, Inc., Chicago, Ill., has just been issued. This book measures 8½ by 11 in. and is bound in a heavy, artificial leather binding which is embossed and printed in two colors. Considered by sections the report consists in part of the following subjects: Section I—The story behind the Institute's training. Section II—The standing of the Institute in the industry as represented by letters from some of the leading manufacturers. Section IV—Photographs showing various buildings and departments of the Institute. Section V—Business paper reports on formal opening of laboratory and shops. Section XII—How students are selected for training. Section XIII—The creation of a new type of craftsman. Because of the expense incurred in producing these books it is requested by the Institute that members of the industry wishing to receive copies make their request on their company's letterheads.

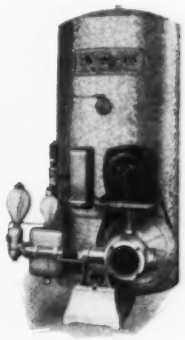
Combustion Control Folder

Crew-Sargent Engineering Co., 101 Park Ave., New York City has just issued a new four page folder descriptive of its automatic combustion control for oil fired, stoker fired and forced draft installations. The folder, printed in two colors, measures 8½ by 11 in. The control damper and control panel of the system are illustrated with photographic reproductions. The features of the system are listed and a diagrammatic sketch of the control is shown as applied to two automatically fired fire-box boilers. Engineering data on the control is given on the fourth page of the folder.

Pocket Size Plumbing and Heating Handbook

The Grabler Mfg. Co., Cleveland, Ohio, has recently published a pocket size mechanical handbook. This is the second edition of this book to be printed. It is indicated the data this mechanical handbook contains will eliminate hours of tedious calculation. In addition to price list tables, the booklet contains: Symbols for

1. Water Box (Pat. No. 1507441) Suction Valves below and discharge valves above cylinder increases suction lift and causes water to travel in one direction only through pumps hence named Uniflow responsible for 20 to 30% more efficiency in power and current consumption and exceptionally quiet operation.
2. Remove two large brass nuts only to get at and inspect entire suction or discharge valve mechanism.
3. The large Air Chamber on the tankless shallow well water system.
4. Centrifugally flooded oiling system for positive lubrication (Pat. No. 1609582)
5. Visible oil supply thru window in crank case.
6. Self Adjusting piston rod wiper (Pat. No. 1839 231) prevents water getting into oil. Extra deep and improved stuffing box.
7. Shallow well pump and including as large as 42 gallon tank shipped assembled in one crate ready to install.
8. No stick automatic switch (Pat. No. 1878456)
9. V belt drive for quiet operation and quiet Capacitor Motor.
10. One of the first electric shallow well pumps on the market.



Uniflow Shallow Well System illustrated with 42 gal. tank and 265 gallon per hour pump sells for $75.00 List. Uniflow pumps start at $48 List. Generous discounts give you a price edge in a quality product. Remember, only Uniflow ships complete 42 gal. tank system assemblies in one crate to save up to 6 hours field time.

Some Good Pump Territories Left for Live Salesmen.

EVERY POINT A SHALLOW WELL PUMP SALES MAKER—These 10 points are carefully selected from many Uniflow features. Each was pioneered by Uniflow and together they prove the great value offered in Uniflow Shallow Well Pumps.

These lively sales advantages can work to your profit. The Uniflow line covers 11 products priced to make sales and built to make friends. Write for full details.

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Shallow Well Pumps - Deep Well Pumps - Cellar Drainers - Water Softeners - Klarifiers
Water Coolers - Milk Coolers - Septic Tanks - Beer Pumps
Domestic and Commercial Refrigeration **Draught Beer Cooling Systems**

Sell a Lively Line **UNIFLOW** **UNIFLOW MFG. COMPANY, Erie, Pa.**

Plumbing; Table of Trade Discounts; Decimal Equivalents; Dimensions of Pipe; Cubic Contents of Pipes and Tanks and 40 more pages of practical information of interest to all plumbing and heating estimators and installers.

Installation Instructions For Heating System Balancer

Anderson Products, Inc., Cambridge, Mass., has just released two new instruction pamphlets on the installation of its heating system balancer. The first of these describes the balancer for installation on gas-fired boilers and the second one the balancer for installation on automatically fired coal or oil boilers. These instruction sheets measure 8½ by 11 in. and contain several line drawings which facilitate the installation. The directions for cleaning the balancer are given on page five of the six page booklets.

Deep Well Pump Literature

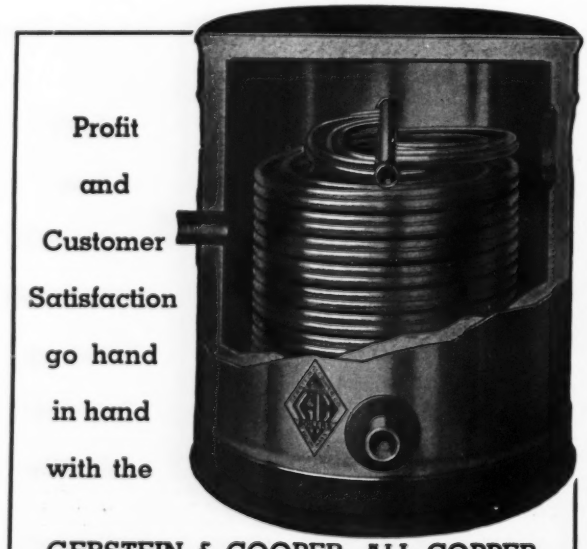
Two new folders covering deep well centrifugal pumps have recently been issued by American-Marsh Pumps, Inc., Battle Creek, Mich. One of these folders is devoted to the company's line of pumps for industrial service. The folder measures 8½ by 11 in., is printed in three colors, contains four pages and is perforated for loose-leaf filing. Features of the pumps are described and illustrated. Typical uses are described on the back page. The second folder describes the pumps as they may be adapted to suburban homes, farms, tourist camps, schools and lake cottages. Advantages to be obtained from the installation of these pumps are described on one page and a cross-sectional view of the pump with the various parts named is given on another. The back page of the folder has a condensed selection table to aid the purchaser in deciding what capacity pump to buy.

Refractory Catalog Sheet

Quigley Co., Inc., 56 West 45 St., New York City, has just issued a new catalog sheet relative to its high temperature insulating blocks. Besides describing the blocks and listing their advantages the bulletin gives three tables, showing in graphic form the various temperatures at which the three described bricks are the most efficient. The sheet measures 8½ by 11 in. and is printed in two colors.

Heating Specialties Catalog

The Trane Co., LaCrosse, Wis., has just issued a new catalog covering its line of heating specialties. The booklet measures 8½ by 11 in. and contains 34 pages. It is bound in a separate heavy paper cover and is printed in two colors. The cover itself has a glossy finish and is



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GERSTEIN & COOPER, ALL COPPER TANKLESS WATER HEATER

For All Types of Automatically Fired Systems

This Highly Efficient G & C Water Heater will deliver 360 gallons of hot water per hour. It is ruggedly constructed to give years of service without expense. Domestic Water Shell is heavy gauge copper, electrically welded and thoroughly insulated with mineral wool. Copper tubing is silver-brazed to bronze headers with no threaded or ground joints to leak. Jacket is lead-coated steel, attractively finished in Duco.
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WORKS EASILY.. WIPES SMOOTHLY.. SETS SLOWLY..
NEEDS NO DOCTORING!

For Your Protection this product is sold only through recognized plumbing supply jobbers—who in turn loyally support master plumbers.

THE EAGLE-PICHER LEAD COMPANY
CHICAGO · JOPLIN · CINCINNATI

EAGLE wiping solder

printed in three colors. Besides descriptions of the various heating specialties which are described and illustrated, the catalog contains 14 pages of data on vapor heating systems, split systems, vacuum systems, and on heat loss calculations. Typical piping connections for vapor heating systems, unit heaters and blast coils are given. Three pages of the booklet are used to explain the specifications for the company's heating specialties.

Literature on Pipe Pusher

Giant Mfg. Co., Council Bluffs, Iowa, has just issued a broadside entitled "The Dough That Goes . . ." devoted to the pipe pusher manufactured by the company. This broadside when folded measures 4⅛ in., by 9½ in., and when open 12¼ by 19 in. The folder is printed in two colors and besides illustrating the equipment gives a complete listing of its features and advantages. The sizes and capacities of the pusher are given along with list prices for the various sizes.

Water Purification Control Book

The second edition of "Water Purification Control" by Edward S. Hopkins has just been issued by The Williams & Wilkins Co., Baltimore, Md. The book measures 5½ by 8½ in., contains 184 pages and is bound in a cloth cover. The book was published to furnish the water-supply man with a short non-technical, handbook and guide. The publisher states ". . . the author was guided by his actual experience in training men to enable them to assume control later of water purification plants." The various chapter headings of the book include: Coagulation; Sedimentation; Filtration, Disinfection; Tastes and Odors; Corrective Treatment; Plant Control Data; and Softening. Copies of the book may be obtained from the publisher for $1.75.

Sewage Pumps Catalog

Yeomans Bros. Co., 1433 Dayton St., Chicago, Ill., is distributing a four-page, 8½ by 11 in. folder which is perforated for ease in filing. The folder covers the company's sewage pumps. Photographs and line drawings are used to more clearly indicate the advantages and features of the pumps. Among the paragraph headings descriptive of these features are the following: Impeller; Pump Shaft; Clean-Out Openings; Impeller Hub; Coupling; and Packing Gland and Box.

Zone Controlled Heating Systems Described

Under the title "Tallmadge Zoned Controlled Heating Systems" the new catalog of Webster Tallmadge & Co., Inc., New York City has just been issued. This 24 page book measures 8½ by 11 in. and is printed in two colors.

LELAND
BACKGROUND
Any product to be successful over a term of years must have back of it soundness of design and adequate service.
The Leland Electric Company meets those requirements in fullest measure. Therein lies the success of its products in the field of small motor manufacturing throughout the world.
Whatever your motor requirement may be, it will pay you to consider the Leland.
THE LELAND ELECTRIC COMPANY
DAYTON, OHIO, U. S. A.

FACTS OF INTEREST TO PLUMBERS!

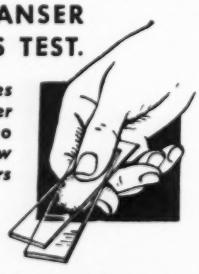
Sofa Bath (French)
LOUIS XVI PERIOD

LUXURIOUS AS THIS TUB APPEARS, ITS SURFACE WAS PROBABLY OF ROUGH, HAND-WROUGHT METAL, KEPT CLEAN BY SCOURING WITH SAND.

AS BATHTUB FINISHES BECAME SMOOTHER, HARSH CLEANSERS WERE FOUND TO BE MORE AND MORE DAMAGING.

UNTIL *TODAY*—LEADING PLUMBERS AND PLUMBING CONTRACTORS RECOMMEND A *SAFE* CLEANSER—FREE FROM HARSH, SCRATCHY GRIT LIKE OLD DUTCH CLEANSER.

AND HERE'S THE TEST THAT PROVES OLD DUTCH IS SAFE. WE INVITE YOU TO COMPARE OLD DUTCH CLEANSER WITH ANY OTHER IN THIS TEST.



Place a little Old Dutch between two pieces of glass and rub them together. You'll neither hear nor feel any harsh grating and no scratches will be made in the glass. Now make the test with ordinary harsh cleansers and see the difference!

Since the surfaces of the porcelain enamel fixtures you install are practically glass fused onto metal, the test pictured above, showing the safe action of Old Dutch Cleanser on glass is of particular interest to the plumbing industry. The makers of Old Dutch Cleanser urge you to make this test. And enjoy that satisfaction which comes from recommending a cleanser you know, by personal test, does not scratch.

It has a separate, pebble-grained, heavy paper cover. The catalog tells how the zone control operates, the engineering features which make it desirable and shows in some of the illustrations typical buildings which have the system installed. Line drawings are also used effectively to supplement the written description. Several pages of the catalog are devoted to descriptions of the features of more detailed parts of the system.

Information on Radiators

A 15 page booklet which has just been issued by Weil-McLain Co., Erie, Pa., is devoted to the company's line of radiators. This booklet is printed in four colors, and measures 8½ by 11 in. It is bound in a glossy paper cover which is likewise printed in four colors. Views of the interior of homes showing the recessed radiators and cross-sectional views of the radiators themselves are among the illustrations. A cutaway view of the typical home shows how and where radiators may be installed. Both radiant and conventional cast iron radiators are included in this sketch. Tables of dimensions and capacities of all the radiators described are given on seven pages of the booklet and another page describes detailed features of the equipment.

Folder On Unit Air Conditioner

Burnham Boiler Corp., Irvington, N. Y. has just issued a new six page folder on its unit air conditioner. This folder is printed in two colors, measures 3½ by 6½ inches and contains six pages. Two of the included illustrations show, first, a view of the interior of the unit air conditioner, at the bottom of which is the double spun glass filter and above it the fan and 1/100 H.P. motor, and second, a view of the filter from one of the air conditioners after three months use. A list of ten advantages of radiator heat is supplemental to "Some Horse-Sense Facts in Air Conditioning." One page of the folder has a cross-sectional line drawing with the various parts of the conditioner labeled and beneath it a concise description of how the air conditioner works.

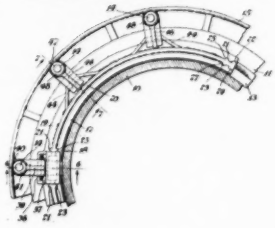
Heating and Air Conditioning Survey

"Viewed From Every Angle" is the title of a 30-page booklet recently brought out by Hoffman Specialty Company, Waterbury, Conn. This booklet is described as the result of a survey of residential heating and air conditioning trends, systems and costs. It first considers the initial costs of two types of heating systems and then balances one against the other. Descriptions of features of the company's heating and air conditioning system are given and are illustrated in some cases by full-page photographic reproductions and line drawings. The back section of the booklet contains more detailed information regarding this system and describes features of various parts of the system.

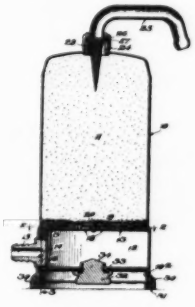
NEWS *of* PATENTS

Plumbing

2,059,573. Pipe Clamp. Beauford Gavin, Indianapolis, Ind., assignor, by mesne assignments, to S. R. Dresser Manufacturing Company, Bradford, Pa., a corporation of Pennsylvania.



2,059,573
PIPE CLAMP

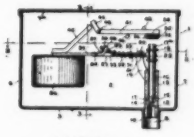


2,067,302
WATER TREATING APPARATUS

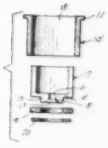
2,067,302. Water Treating Apparatus. Eric Pick, New York, N. Y., assignor to the Permutit Company (1934), Wilmington, Del., a corporation of Delaware.

2,067,836. Control Means. Andrew Kip Foulds, West Englewood, N. J., assignor to Detroit Lubricator Company, Detroit, Michigan, a corporation of Michigan.

2,074,195. Pressure Relief Valve. Ralph E. Uphoff, Madison, Wis.

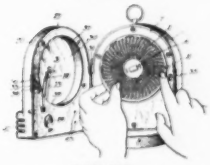


2,067,836
CONTROL MEANS



2,076,227
VALVE

2,074,195
PRESSURE RELIEF VALVE



2,060,984
RECORDING INSTRUMENT

2,076,227. Valve. Walter Czarnecki, Eddington, Pa., assignor to Eddington Metal Specialty Co., Eddington, Pa., a corporation of Pennsylvania.

2,060,984. Recording Instrument. Robert E. Fraher, Chicago, John M. Butler, Evanston, and Albert E. Hendricks and Carl E. L. Lipman, Chicago, Ill., assignors to Practical Instrument Company, Chicago, Ill., a corporation of Illinois.

YOU SHOULD TAKE A GOOD LOOK AT THE

Adams Kleen Tube

The Cleanable WATER HEATER

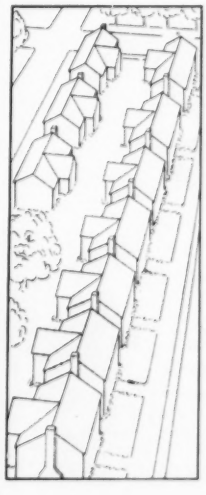
at the INTERNATIONAL Heating & Ventilating EXPOSITION

→ BOOTHS 520-521

ADAMS ENGINEERING COMPANY, INC.
2607 WENTWORTH AVE., CHICAGO

9 out of 10 NEED the

Phillips Valve TODAY



Go into the homes in your community and check the basement drain traps. You will find 9 out of 10 are dry—open passageways from the sewer. Through these open passageways enter foul gases and disease-carrying vermin from the sewer.

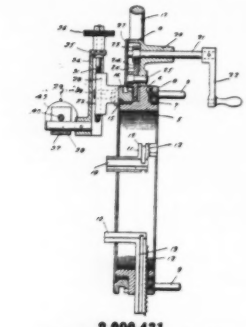
Fight this menace . . . and profit! Tell customers about the Phillips Automatic Trap Seal Valve—the only sure protection against sewer gas and vermin. You sell the valve for $5 and get an installation job of from $5 to $15. Order a sample valve and display poster now.

Phillips AUTOMATIC TRAP SEAL VALVE

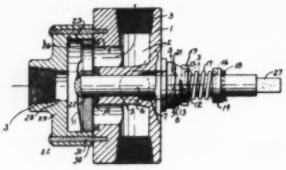
PHILLIPS CORP., 806 S.W. Broadway, Portland, Oregon.
☐ Send me Display Poster.
☐ Send me _____ Phillips Valves at $3.50 each through _____ (My plumbing wholesaler)

My name _____

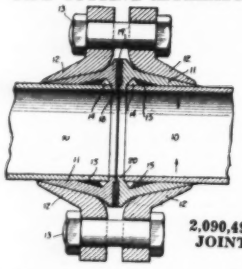
My address _____



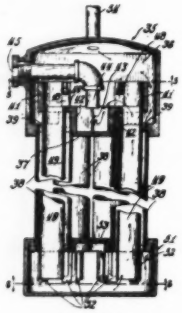
2,090,431
PIPE CUTTING APPARATUS



2,089,943
FLUID VALVE



2,090,497
JOINT



2,090,323
WATER HEATER

2,090,431. Pipe Cutting Apparatus. Charles Ralph Stover, Elkview, W. Va.

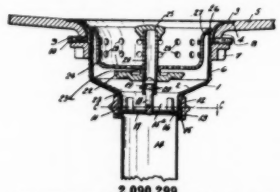
2,089,943. Fluid Valve. Daniel Busby, Seattle, Wash.

2,090,323. Water Heater. Ollie L. Besinger, Chicago, Ill.

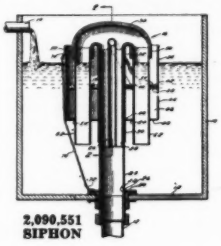
2,090,497. Joint. William Jeffries Brown, New York, N. Y., assignor of one-eighth to Ernest W. Borkland, Jr., and one-eighth to Tyree Dilliard, Jr., both of New York, N. Y.

2,090,551. Siphon. Mike Pribula, Chicago, Ill.

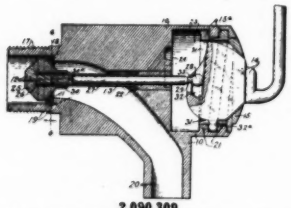
2,089,931. Pipe Fitter's Wrench. Olin E. Banker, Wilkes-Barre, Pa.



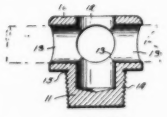
2,090,299
COMBINED DRAIN AND STRAINER



2,090,551
SIPHON



2,090,309
DUAL-ACTUATING UNLEAKABLE FAUCET



2,089,931
PIPE FITTER'S WRENCH

2,090,309. Dual-Actuating Unleakable Faucet. Giles E. Ripley, Fayetteville, Ark.

2,090,299. Combined Drain and Strainer. Frederick C. Kuhnle, Spring Lake, Mich.

NYE TOOLS

"The Kind You Swear By and Never At"

NYE SOLID MALLEABLE STOCK

With Adjustable Guide

Capacity ⅛" to 1" Pipe

This stock regularly furnished with Nye No. 1 Solid Skip Tooth Threaded Throat Dies. Will take solid 2½x2½ Square Dies of any make.

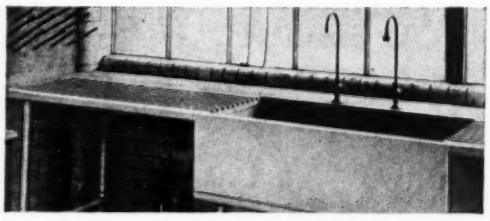
The die fits snugly and is held securely to the stock by two screws, assuring perfect alignment with the pipe. Die may be removed by partially loosening the screws and sliding it out sideways.

In addition to pipe ⅛ to 1", the compact adjustable guide will accommodate a 1" coupling when the operator finds it necessary to thread short nipples. Will also handle bolts from ¼ to 1".

ASK YOUR JOBBER

***The* NYE Tool & Machine Works**

4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.



SPECIAL SINKS TO FIT ANY SPACE

Non-absorbing and non-staining, Alberene Stone is ideal for sinks and laundry trays. Tongue and groove joints with hidden bolts, permanently cemented, have the strength and tightness of one-piece units.

Alberene is acid-, heat-, and wear-resisting. It can be shaped, sawed and fabricated in any desired shape or form.

Order Alberene Sinks of any dimensions to fill any desired spaces. Shipment will be made within one week from the receipt of order and complete details as to sizes, openings, etc.

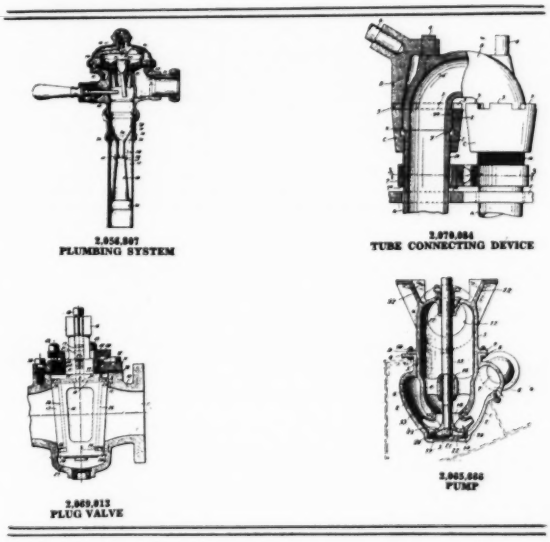
Write for special price on the Alberene 44" Laundry Tray, plain and in Duco colors.

ALBERENE STONE CORP. OF VIRGINIA
419 Fourth Avenue, New York, N. Y.
Quarries and Mills at Schuyler, Va.

ALBERENE STONE SINKS • TRAYS

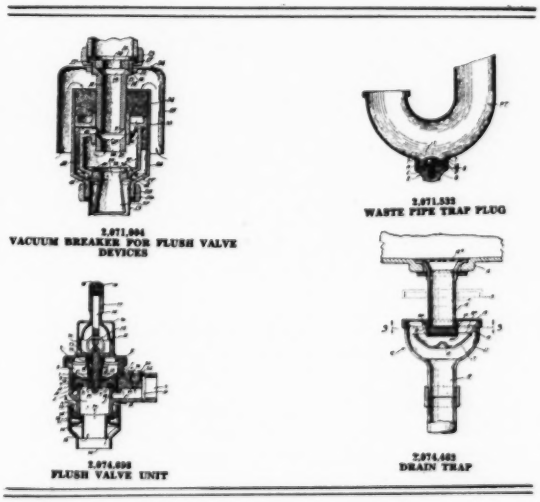
2,056,807. Plumbing System. William C. Shanley, Chicago, Ill., assignor to The Imperial Brass Manufacturing Company, Chicago, Ill., a corporation of Illinois.

2,069,013. Plug Valve. Sven Johan Nordstrom, Piedmont, Calif., assignor to Merco Nordstrom Valve Company, San Francisco, Calif., a corporation of Delaware.



2,070,084. Tube Connecting Device. Frederick E. Key, St. Louis, Mo., assignor to Key Company, a corporation of Missouri.

2,065,666. Pump. Oscar H. Dorer, East Orange, N. J., assignor to Worthington Pump and Machinery Corporation, New York, N. Y., a corporation of Virginia.



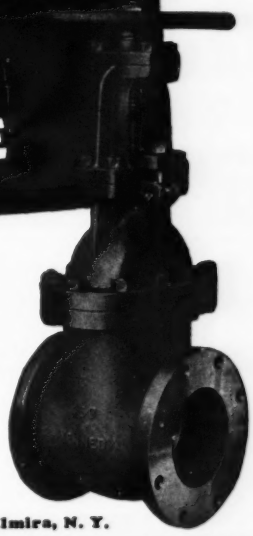
2,071,004. Vacuum Breaker for Flush Valve Devices. William C. Shanley, Chicago, Ill.

2,074,698. Flush Valve Unit. Jesse D. Langdon, Los Angeles, Calif.

2,071,532. Waste Pipe Trap Plug. Morris J. Hyman, Philadelphia, Pa.

2,074,462. Drain Trap. Charles Vance Dame, Lanark, Ill.

OUTSTANDING VALVE SERVICE



KENNEDY Valves 30 and 40 years old are still in daily use—too good to be replaced. The sturdiness and lasting qualities that have enabled these Kennedy old-timers to give outstanding service are built into each of the present Kennedy designs—together with innumerable refinements and improvements which make the Kennedy Valves of today even more outstanding in value.

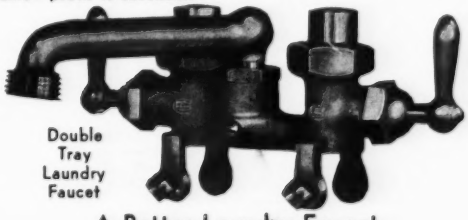
Write for Catalog

The Kennedy Valve Mfg. Co., Elmira, N. Y.

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS
BUY KENNEDY PRODUCTS FROM YOUR LOCAL DEALER

Items Needed Everywhere

These items, as well as many others in the quality Consolidated Line, are needed in almost every household. You can sell in volume—profit is excellent.



Double Tray Laundry Faucet

A Better Laundry Faucet

A strong, compact, serviceable double tray faucet. Top mounted spout provides wider swing—greater compactness, less strain on clamps, and more strength. Water passage full flow—valves full opening, leak proof. Carefully adjusted and tested.

Hot Water Tank Relief Valves

No. 1350 instantly relieves dangerous pressure—No. 1360 relieves dangerous pressure or temperature. All brass—phosphor bronze spring—corrosion proof—sure in action—long lasting.

No. 1360 Combination Pressure and Temperature Relief Valve.

Write for Catalog

No. 1350 Pressure Relief Valve.

CONSOLIDATED BRASS CO.
138 Summit Avenue Detroit, Michigan

KUPFERLE
FIRE HYDRANTS
KUPFERLE
Freeze-Proof Hydrants
KUPFERLE
PLUMBING SPECIALTIES

Master craftsmanship developed through eighty years of continuous operation. Kupferle products have the proven record of giving long and satisfactory service. Send for Descriptive Lists and prices.

JOHN C. KUPFERLE FOUNDRY CO.
ST. LOUIS

THE ONLY TRAINING PROGRAM
Actually Supervised
BY A MANUFACTURER-APPOINTED BOARD OF GOVERNORS

● It should mean a great deal to an employer faced with the problem of building a capable and dependable organization, to know that a selected group of hand-picked men are being prepared for Refrigeration and Air Conditioning work thru a Training Program which is *actually supervised* by FACTORY ENGINEERS WORKING IN THE INDUSTRY, delegated to do so by some of the 70 leading manufacturers who are "officially" endorsing and recommending this Training Program.

This vitally important point is proof of the fact that the Refrigeration & Air Conditioning Institute is training men just the way the Industry wants them trained—exactly as these manufacturers would train them if they were doing the job themselves. As a leading manufacturer recently put it—"What you are doing is creating a new type of Craftsman, —the kind of trained man so badly needed in this Industry, today."

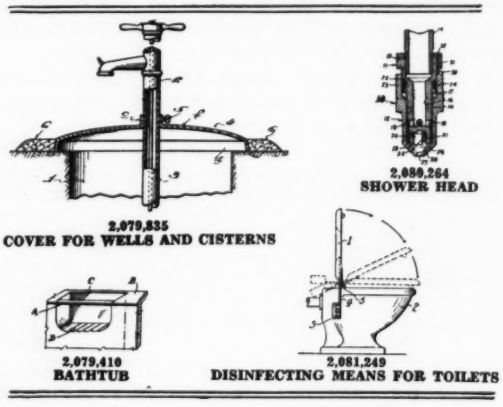
Yes! R-A-C-I graduates *are* a "new type of Craftsman." They know every phase of heating, ventilating, and cooling as applied to air conditioning—know it from the practical as well as the theoretical standpoint. Under the supervision of some of the Industry's best engineers they have been trained, by us, to do the things you as an employer want them to do —properly install, service and repair. In fact, many of our graduates are capable of doing even more responsible work—capable of stepping right in where the Application Engineer leaves off, and make work what that Engineer has installed.

The record of every man trained by the Institute,—including his photograph, our rating of his ability, what his references had to say about him,—everything, in fact, that you as an employer would like to know, —is available upon request—without obligation.

If you do not have a copy of the Institute's "Report to the Industry" —a 200-page cloth-bound book with 17 big photographs—please ask for it on your letterhead.

Ralph Smith
PRESIDENT

REFRIGERATION & AIR CONDITIONING INSTITUTE
2130-2156 LAWRENCE AVENUE CHICAGO, ILL.



2,079,835. Cover for Wells and Cisterns. Isaac F. Bradley, Dallas, Tex.

2,080,264. Shower Head. Leo E. Gray, San Pedro, Calif.

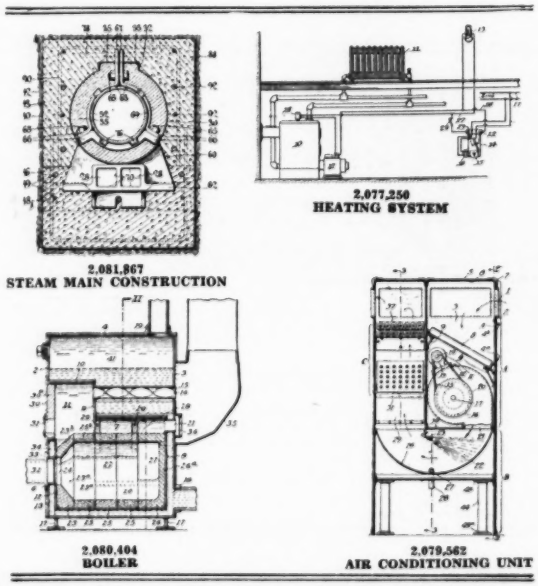
2,079,410. Bathtub. Ernest R. James and Swan N. Mehlin, Inglewood, Calif.

2,081,249. Disinfecting Means for Toilets. Stanley Pryba, Toledo, Ohio.

Heating

2,081,867. Steam Main Construction. Manuel H. Gysling, North Tonawanda, N. Y., assignor to American District Steam Company, North Tonawanda, N. Y.

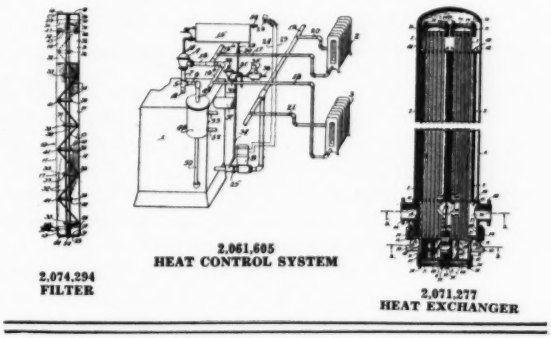
2,077,250. Heating System. William F. Miller, Evansville, Ind., assignor to Industrial Engineering Corporation, Evansville, Ind.



2,080,404. Boiler. Louis N. Hunter and John W. Hall, Johnstown, Pa., assignors to National Radiator Corporation, Johnstown, Pa., a corporation of Maryland.

2,079,562. Air Conditioning Unit. Charles A. Olson, John P. Magos, and Malcolm W. McRae, Chicago, Ill., assignors to Crane Co., Chicago, Ill., a corporation of Illinois.

2,074,294. Filter. Henry S. Woodruff, Larchmont, N. Y., assignor to American Radiator Company, New York, N. Y., a corporation of New Jersey.

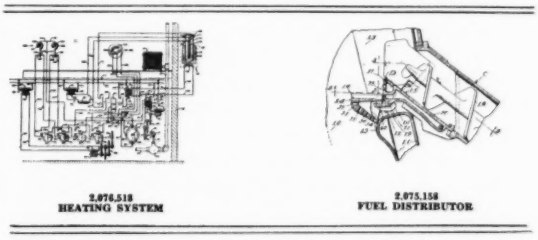


2,074,294 FILTER

2,061,605 HEAT CONTROL SYSTEM

2,071,277 HEAT EXCHANGER

2,061,605. Heat Control System. Howard D. Yoder, Detroit, Mich., assignor to Penberthy Injector Company, Detroit, Mich., a corporation of Delaware.



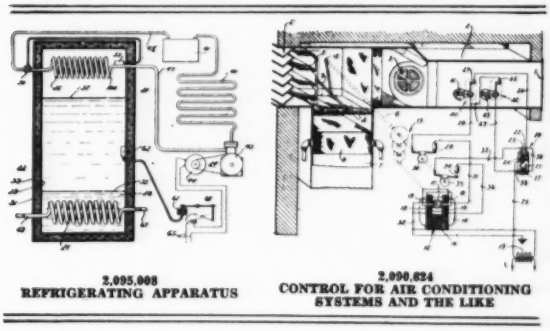
2,076,518 HEATING SYSTEM

2,075,158 FUEL DISTRIBUTOR

2,071,277. Heat Exchanger. John M. Barclay, Brooklyn, and James B. Forbes, Mount Vernon, N. Y., assignors to Alco Products Incorporated, New York, N. Y., a corporation of Delaware.

2,076,518. Heating System. Paul E. Seepe, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Company, Minneapolis, Minn., a corporation of Delaware.

2,075,158. Fuel Distributor. Howard P. Anderson, Erie, Pa., assignor to The Standard Stoker Company, Inc., a corporation of Delaware.

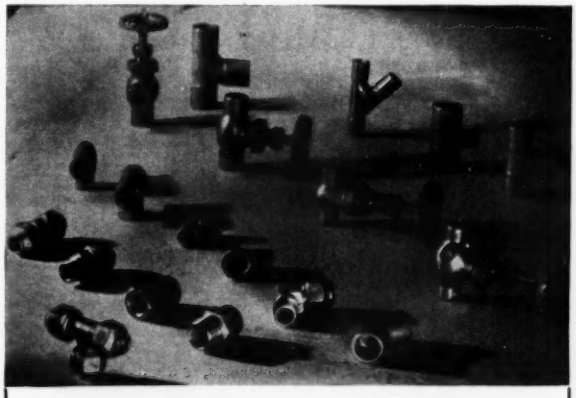


2,095,008 REFRIGERATING APPARATUS

2,090,624 CONTROL FOR AIR CONDITIONING SYSTEMS AND THE LIKE

2,095,008. Refrigerating Apparatus. Lawrence A. Philipp, Detroit, Mich., assignor, by mesne assignments, to Nash-Kelvinator Corporation, Detroit, Mich., a corporation of Maryland.

2,090,624. Control for Air Conditioning Systems and the Like. George Forrest Drake, Rockford, Ill., assignor to Howard D. Colman, Rockford, Ill.



Fittings by Nibco

Years of experience, won during the pioneering days of copper plumbing, are reflected in the complete line of valves and fittings manufactured by NIBCO. That's why experienced plumbers prefer these time-tested products, and look for the NIBCO trademark as an assurance of quality and workmanship.

NORTHERN INDIANA BRASS COMPANY
ELKHART, INDIANA

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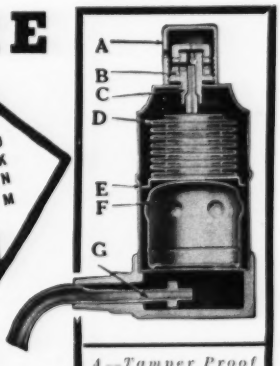

A—Tamper Proof Vent Lock. B—2-Way Vent Regulator (5 Venting Speeds). C—Large Orifice. D—Upper Corrugated Float (Open to Atmosphere). E—Float Guide. F—Lower Float (Thermostatic Control). G—Adjustable Syphon.

Only by direct comparison can you obtain a true picture of the advantages of the SLATER Dual Float Vacuum Regulator Valve. Check the SLATER Valve point-by-point with other valves . . . note particularly the following outstanding features . . . then judge it for yourself:

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3. ☐ Vent Lock Principle Preventing Tampering
4. ☐ Can be cleaned in ½ minute without Removal from Radiator
5. ☐ *BUILT TO BREAK ITS OWN VACUUM*

If you are not already familiar with the SLATER Valve, such a comparison should prove a revelation to you. It will show you why so many thousands of heating men prefer to specify SLATER Valves for their trade. Follow their example and specify SLATER Valves exclusively.

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Slater DUAL FLOAT VACUUM REGULATOR VALVES

Court Decisions—

(Continued from Page 60)

York Supreme Court, First Department, 163 Miscellaneous, 828.)

PICKETING FOR PUBLIC INFORMATION

In a recent decision one retailer found that his store could be legally picketed in controversies other than labor disputes. This was the decision of the New York courts in a recent case.

It happened in the case of a meat market in which there was a Kosher poultry stand. The other meat sold in the market, however, was not Kosher. An organization of Kosher butchers picketed the place with placards stating that the sale of Kosher poultry was no indication that other meat sold in the place was Kosher.

The proprietor of the meat market petitioned the court for an injunction against this picketing, but the injunction was refused.

"The proprietor," said the court, "admits that he doesn't sell Kosher meat. There is weight in the argument that he opened a Kosher poultry department as a means of profiting from the business of unwary purchasers who might infer from the sign in the poultry department that the entire market sells Kosher meat. The placards giving this information to the public are absolutely truthful."

The concluding statement of the court was: "The right of giving public information of this character in a forcible manner is not limited to labor disputes." The court then cited a number of legal authorities sustaining the right to picket in other than labor disputes. (Rosman vs. United Strictly Kosher Butchers, 298 New York Supplement, 343.)

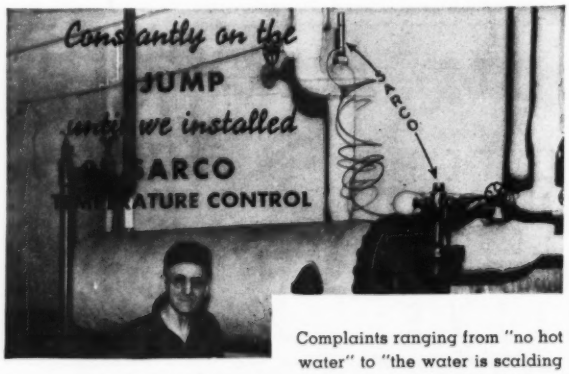
"FREEZING OUT" A DEALER

Manufacturers and other distributors may have the right to select retailers to whom they are willing to sell and to appoint exclusive retailers in particular locations. But does a manufacturer or wholesale distributor have the right to enter into an agreement with a dealer's competitors to the effect that the manufacturer will sell the competitors but not the particular dealer against whom the agreement is directed?

That question was raised in a recent Missouri case, where there is an anti-trust law. Discussing the combination against the complaining dealer, the court said:

"By the agreement the manufacturer and the other dealers agreed among themselves that the complaining dealer should be hindered in his business of buying and selling merchandise, thereby eliminating competition. Anyone may exercise a choice as to whom he will sell his goods, but he cannot enter into a contract whereby he binds himself not to sell, for in such instance he barters away his right of choice and destroys the very right he claims the privilege of exercising. After entering upon such agreement, he is no longer a free agent.

"It is argued that a person engaged in a private business has a right to buy from whomever he pleases, to



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sell to whomsoever he will, or to refuse to sell to a particular person. That right does not extend to an agreement and concerted action of such person with others similarly engaged, in a common design to destroy the business of another or to the making of an agreement forbidden by law and concerted action thereunder inflicting an injury upon the public. What the parties could have done individually, by independent action, is essentially different from what they might do collectively, pursuant to an agreement between themselves and a resulting concerted action."

The merchant in this case was thus protected by the court under the State anti-trust law. (Reisenbichler vs. Marquette, 108 Southwestern Reporter, second series, 343.)

LIABILITY OF PARTNERSHIPS

A hot-headed member of a partnership can quickly get the other partners into the proverbial peck of trouble, according to a recent lawsuit. Two men were partners in a small business, and it seems that one of them got into an argument with a customer who, he felt, had "pulled a dirty trick" on the partnership. An altercation ensued and the customer allegedly was injured by blows of the indignant partner.

The customer then brought a suit for damages against the partnership and against both partners individually. This suit was based on the legal theory that a partnership and all the partners are individually liable for the torts of one partner committed in the course of the partnership business. A tort is a wrongful act whereby an innocent person is in some way damaged.

In that particular case the partnership and the other partner were excused of liability by the court on the ground that the wrongful act of the other partner was not committed in the course of the partnership business.

"The test of the liability of the partnership and of the several members thereof for the torts of any one partner," said the court, "is whether the wrongful act was done within what may be reasonably found to be the scope of the business of the partnership. That partners are individually responsible for torts by the firm when acting within the general scope of the business, whether they personally participate therein or not, we regard as entirely clear. If the wrongful act is a partnership act, it must also be severally the act of the partners; but if it is wilful and malicious and done by one of the partners without the knowledge or consent of the others and not for the benefit or purposes of the partnership, it will not be considered as within the usual scope of an ordinary business partnership."

On the other hand, the court pointed out: "If the wrongful act complained of is done by one partner for the benefit of the firm, and the firm afterwards takes advantage of it and adopts the transaction, all the members of the firm may then become responsible for the act and its consequences."

This rule is considered generally to apply where one partner defrauded or otherwise injured a customer in such a way that the partnership knowingly benefited by the wrong. This rule of partnership liability does not mean criminal liability, but applies to the liability of the partnership and individual partners to pay for the damage resulting from the wrongful act of the one partner.

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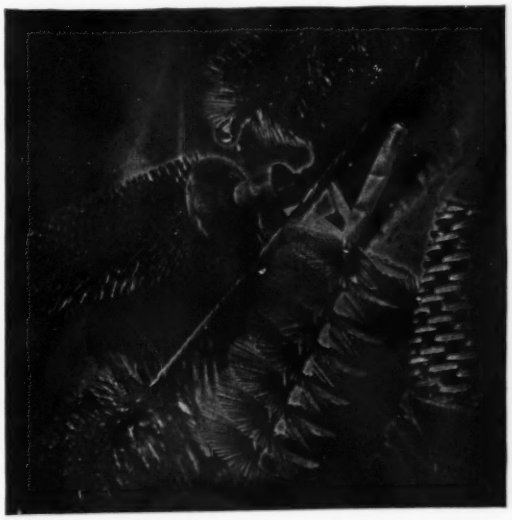

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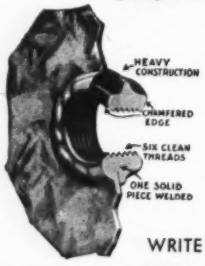

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(Schloss vs. Silverman, 192 Atlantic Reporter, 343).

TRADE ASSOCIATION LEGAL

Manufacturers of women's garments organized an association for the purpose of preventing so-called "piracy" of dress designs. The members of this association allegedly agreed among themselves not to sell to a merchant who bought from a manufacturer who pirated dress designs.

A large department store brought an action against this association on the ground that it violated the Sherman Act, but the Federal Court did not think so. The court felt that the Sherman Act did not prevent the members of an industry from combining to do away with evils in the industry detrimental to the industry as a whole. Similar ends have been accomplished in a number of trades and industries by the formulating of a fair trade code under the auspices of the Federal Trade Commission.

INJURED CUSTOMER

What is the legal liability of a business house for injuries suffered by a customer who falls over an obstruction in an aisle intended for the use of customers?

In a recent court case a woman sued the owner of a store for injuries allegedly sustained by her when she fell over a box placed in a narrow aisle which afforded the only access to a section of the store where she desired to make purchases. At the trial the owner of the store contended that the customer was at least partly to blame because she was negligent in not looking where she was going as she walked through the store. Upon the trial court's deciding this contention in favor of the store, the woman appealed. The higher court reversed the decision and returned the case to the lower court for a new trial:

"There is a substantial difference between the kind and degree of vigilance which a traveler on a street must exercise to avoid damage and that which is required of a customer in a store. The storekeeper expects and intends that his customers shall look not at the floor, but at the goods which he displays to attract their attention and which he hopes they will buy. He at least ought not to complain if they look at the goods displayed instead of at the floor to discover possible pitfalls, obstructions or other dangers, or if their purchases so encumber them as to prevent them from seeing dangers which might otherwise be apparent. Patrons are entitled therefore to rely to some extent at least upon the presumption that the proprietor will see that the passageways provided for their use are unobstructed and reasonably safe." (Chalmers vs. Great Atlantic and Pacific Tea Company, 192 Atlantic Reporter, 419).

SOCIAL SECURITY TAXES

Now that the Federal Social Security Act has been upheld by the United States Supreme Court, the Bureau of Internal Revenue will doubtless be kept busy making administrative rulings on various applications of the Act to different employment situations. Already it has been ruled that supper money paid to employees working overtime is not wages and therefore not subject to the Social Security tax. Similarly, premiums paid by an

employer on a sick benefit insurance policy covering his employes are not taxable as wages.

Where an employe uses his own car or other equipment on his job, the compensation he receives is, strictly speaking, partly wages and partly rental of the car or other equipment. Only the part paid as wages is taxable for Social Security purposes. The Bureau of Internal Revenue says that either a reasonable division of the money into wages and rental may be made in the contract of employment or, if not, the money may be divided on the basis of the prevailing wage scale in the locality for the type of service rendered by the employe, and the prevailing rental value of similar equipment.

Business men who send out work to be done by people working in their own homes on a piece work basis are considered employers of these workers and Social Security taxes are payable on their compensation.

WARRANTY OR OPINION?

The legal distinction between a "warranty" in the sale of merchandise and a mere "opinion" expressed by the seller, in one case proved troublesome when the customer subsequently attempted to rescind the sale and demand the refund of his money.

Ordinarily, any promise or assertion of a seller concerning the quality of the article sold, if relied upon by the buyer, and understood by both parties as an absolute promise or assertion, is considered in law as a warranty. The legal effect of a warranty is that if the merchandise does not "live up to" the promise or assertion made at the time of the sale, the buyer may repudiate the deal and demand his money back. In some cases he may also sue the merchant for any damage which he may have suffered as a result of the warranty's not working out as promised.

Some courts and legislatures have stated that any representation as to quality made by a merchant at the time of a sale for the purpose of inducing the prospective buyer to buy and which does induce him to buy, amounts to a warranty.

In explaining a mere opinion expressed by a merchant in selling goods, the Supreme Court of Texas recently said:

"A circumstance indicating whether a statement is a mere expression of opinion is whether or not its correctness is a matter in which either of the parties can judge as well as the other and upon which the buyer may reasonably be expected, in the exercise of ordinary diligence, to have formed his own opinion."

A merchant's praising of his merchandise is mere opinion, therefore, where it concerns something about which the buyer can just as readily form his own opinion. Again, the merchant's superior knowledge of his goods is a factor, for as the Texas court points out:

"Superior knowledge of the seller in conjunction with the buyer's relative ignorance, operates to make the slightest divergence from mere praise into representations of fact effective as a warranty."

It was held that it is fair enough for a merchant to praise his goods legitimately, but when he goes beyond that to definite promises and statements of fact with respect to the merchandise, he is responsible if the customer can show that the goods do not comply with

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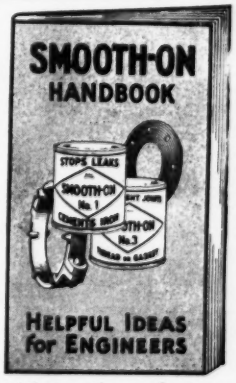

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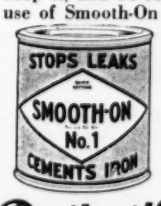

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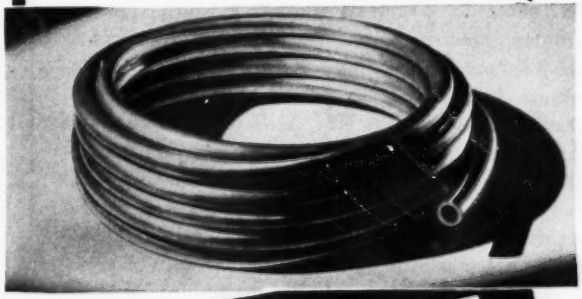

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his promises and assertions. (United States Pipe and Foundry Company vs. City of Waco, 108 Southwestern Reporter, second series, 432.)

UNFAIR LICENSE TAX ON RETAILERS

May a city impose a license tax on some merchants and not on others? May a city apply the license requirement in an arbitrary and unreasonable way?

A Kentucky city had an ordinance requiring that "every person, firm or corporation engaged in the business of selling furniture, household goods or wearing apparel, on a strictly installment plan and operating a regular installment business—where the major part of the receipts are a result of the installment business—shall pay an annual license of $50.00."

Certain merchants affected by this ordinance asked the Kentucky courts to pass upon its validity. Discussing the right of a city to impose such an ordinance tax, the Kentucky Court of Appeals said:

"A city may classify and subclassify trades, occupations and professions for the purpose of licensing them. So long as the tax operates equally upon all subjects within the class to which it is applied, it will be held valid.

"In the license ordinance in this case, the first classification is on merchants conducting a regular installment business, who are defined as those whose major receipts are from installment sales. Theirs is a particular method of doing business. When it comes to considering the subclassification of those who sell furniture, household goods or wearing apparel, the city contends that, as necessities of life, their sale on the installment plan justifies a special or higher tax than where the sale is of commodities not deemed to be necessities.

"Here is a classification of business according to the methods of operating—as between the method of ordinary merchants and the installment plan. The installment merchants are then divided between those merchants who handle everything but house furnishings and wearing apparel and those who sell those necessities. The general merchants are exempt. The second and limited class of merchants are taxed. No dealers in any other kind of merchandise than furniture or clothing, either in the ordinary or customary manner of cash and credit sales or on the installment plan, are subject to this license tax. Illustrative of the injustice and absence of uniformity and reasonableness, a merchant whose major receipts are from installment sales of jewelry, bicycles and other things and not having to pay the license tax, may be in business next door to a merchant selling furniture on the same plan who would have to pay the license. On the other side of him may be a merchant selling furniture on the same plan who would have to pay the license. On the other side of him may be a merchant who sells furniture for cash and credit and on installments, but who would not have to pay such a tax because less than half of his receipts are in installments.

"The singling out of the business of selling necessities for special licensing savors of inequity rather than of reason. It is arbitrary and without a reasonable basis. The license ordinance is invalid."

This decision is representative of the general law on this subject. A city ordinarily cannot impose license

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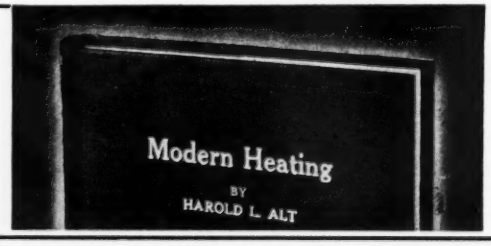

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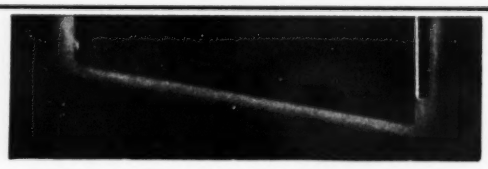

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and tax requirements against certain merchants in an arbitrary and unreasonable manner. The law does not countenance licensing and taxation based on motives of local and political prejudice. Businesses may be classified for licensing and tax purposes, but only on a reasonable plan of classification, and all businesses within the taxed class must be treated uniformly and impartially. (Commissioners of Sinking Fund vs. Weis, 108 Southwestern Reporter, second series, 515.)

FRAUDULENT DEBTORS

Few merchants have escaped the tricky credit customer who "has everything in the wife's name." Feeling that it is useless to sue under such circumstances, the merchant often accepts some small sum in full settlement of the account and charges the rest to experience.

In a recent Arkansas case the court said: "It is thoroughly settled in equity jurisprudence that conveyances made to members of the household and near relatives of the embarrassed debtor are looked upon with suspicion and scrutinized with care, and when they are voluntary, they are presumed fraudulent; and when the embarrassment of the debtor proceeds to financial wreck, they are presumed conclusively to be fraudulent as to existing creditors."

In the particular case before the court, the debtor had assigned his assets to a brother-in-law with a view to preventing his creditors from collecting what was owing to them. The appellate court referred the matter back to the trial court with this direction:

"The assignment will be declared void as being in fraud of creditors, and the court will adjudge the rights of the parties accordingly."

In other words, the effect of this decision was to enable the creditors to collect their claims out of the assets which had been assigned to the brother-in-law for the purpose of avoiding the debts. (Wasson vs. Greig, 108 Southwestern Reporter, second series, 463.)

Display Drawings—

(Continued from Page 69)

would include the plumbers in the small communities as well as those in the cities."

Other angles of Mr. Green's merchandising approach are worthy of comment. His store is located back from the street and has a circular drive, similar to the driveways in modern service stations, leading to the entrance. Parking space for eight cars makes access to his place of business convenient for customers.

He advertises regularly and suggests other contractor-dealers use their local papers as a source of business. "Make use of the booklets and advertising material furnished by the manufacturers," he suggests, "so that your customers will become more familiar with the many advantages of quality plumbing."

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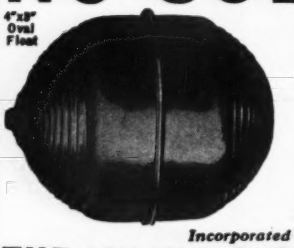

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SULFLO CUTTING OIL — SULFLO PIPE JOINT COMPOUND

ing. As these installations are made, add new customers to the list."

One indication that Mr. Green is using original thinking in advertising and promotion is his letterhead. The stock is pale green, with the printing in a deeper tone of green. The typewriter ribbons used match the printing on the letterhead. The effect is attractive and gives a lot of attention and recognition value to the correspondence. When a customer receives a letter from George L. Green, he knows at once who sent it!

Advertising—

(Continued from Page 57)

and heating equipment at present low prices, and advised the public to buy now. Publicity releases prepared by the bureau accompanied these advertisements on the newspaper's weekly building page.

The series is noteworthy not only for the constructive

Small Space May Be Converted Into Charming Lavette

You may call it the "powder room" or you may prefer to speak of the "lavette."

Either is appropriate in referring to the first floor washroom—a room which is becoming increasingly popular as a convenience to guests as well as the occupants of the house.

The "lavette" need not be large. Indeed, a space 3½ feet wide by 4½ feet long is ample to accommodate a lavatory and a closet combination.

Special plumbing fixtures, incorporating the maximum of beauty and efficiency with the minimum space requirements, have been designed for the first-floor washroom, says the Plumbing and Heating Industries bureau.

A lavatory made particularly for the first floor washroom, while only 22 inches long and 18 inches wide, yet has 98 square inches of unobstructed space for toilet articles. This eliminates the need for a separate glass shelf.

Towel bars are conveniently placed at the side of the lavatory which make separate bars in the lavette unnecessary. Water supply pipes are completely concealed.

Above is shown a reproduction of one of the publicity items featured by the North Shore Plumbing Contractors Assn.

messages carried in the advertisements, but also for the cooperative idea that it presents to other similar groups of contractor-dealers. The campaign promotes the industry as a whole as well as the participating companies. The cost, divided among the members of the group, is

small. More resultful advertisements can be planned when all contribute their experience and ideas.

Publicity stories accompanied two of the three ads reproduced here. One of the releases stresses the quality of American made bathtubs, stating that the bathtub,

America Sets World Style For Bath Tubs

When an American workman puts the finishing touches on a glistening enameled iron bathtub, he never knows if the tub is going to stay in the United States or if it is going abroad—if the bather is going to sing in the King's English or in French, if he will croon softly in musical Manchurian or if the tub will perchance reverlerate with the lusty notes of a Roumanian vernacular.

Exports of American bathtubs, lavatories and kitchen sinks have been increasing with the general improvement in business throughout the world. American motion pictures with their elaborate bathroom sets are credited by manufacturers with having made the world conscious of the superiority of American-made plumbing fixtures.

Once the American locomotive was the vanguard of American culture. Now it is the bathtub.

Newspapers throughout the world recently published illustrations of the sumptuous bathroom—equipped with plumbing fixtures "made in American"—in the Chateau de Cande, Monts, France where, Mrs. Wallis Simpson was a guest prior to her marriage to the Duke of Windsor.

Chinese generals, Indian princes, members of the European nobility and even the proprietors of the Turkish baths in Turkey are among the opulent customers of American plumbing manufacturers. On the Seven Hills of Stamboul where once the women of the seraglio of Selim the Sot bathed in rose scented marble pools, the American bathtub is now preferred.

Interesting and constructive Bureau release which discusses the quality and style superiority of American made bathtubs

not the locomotive, is now in the vanguard of American culture. The other release suggests the desirability of the first floor washroom called the "powder room" or "lavette."

Working together, the advertisements and releases make a powerful selling message over a period of time. It will be noticed that, while some of the advertisements illustrate specific fixtures, taken as a group they are pointed toward the sale of all the contractor-dealers' merchandise and services. These ads are not designed to attract the occasional bargain hunter. Rather are they designed to build confidence for the participating companies. Thus the effects of the campaign should be cumulative, with results gaining as the effort progresses.

An Investment in Permanence

When you make any recommendations for Kitchen equipment on either new building or remodeling jobs, remember that such installations are an Investment in PERMANENCE. It will, therefore, be to your interest as well as the interest of your clients to recommend only

ELKAY *"Sturdibilt"* STAINLESS STEEL SINKS and TOPS

They are built of 18 GAUGE (.050") Stainless Steel and reinforced with 14 GAUGE (.078") steel backing, making a total thickness of over 1/8", thus assuring a lifetime of Service and Satisfaction—years of enduring Charm and Beauty.

FREE KITCHEN PLANNING SERVICE

ELKAY Engineers render FREE Kitchen Planning Service to Architects, Contractors, and Plumbers. Send us your specifications and we will submit plans and estimates without cost or obligation.

ELKAY MANUFACTURING CO.
4729 W. ARTHINGTON ST. CHICAGO, ILL.

☆ ★ ☆

A Fine Modern Basin Faucet

HIGH BODY

☆ ★ ☆

ONE INCH AIR GAP

To meet Code Requirements —Made Right — Moderately Priced. *Sold Through Jobbers.*

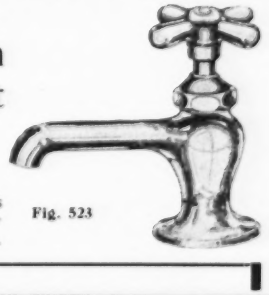


Fig. 523

H. B. SHERMAN MFG. CO., BATTLE CREEK, MICH.

•WARNOCK•

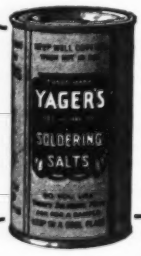
Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

PUT SOLDER ON THE SPOT



more quickly and more economically by using YAGER'S Soldering Salts on every joint. The perfect job, which invariably results when you use YAGER'S, in less time and with less labor, can mean but one thing to you . . . greater profits. In use for over half a century, YAGER'S Soldering Salts has proved to be an excellent aid in making perfect joints on all types of soldering jobs. Available in ½, 1, 5, 25 and 50 lb. cans. Get your supply from your wholesaler today.

ALEX. R. BENSON CO., Inc., Hudson, N. Y.

List of distributors in McRae's Blue Book. Sales agency for Canada: CANADIAN GENERAL ELECTRIC CO., Toronto, Montreal.

YAGER'S SOLDERING SALTS

THE PUBLIC DEMANDS QUALITY!

Chalmers has it

17 YEARS of active experience! Used widely in America, Europe, Asia and Africa. Carries Underwriters and New York City approval. Used by the U. S. Government. Adapted to Boiler-Burner and Furnace Units. New literature available for interested dealers — Write today. Use your letterhead, it stimulates us!

CHALMERS OIL BURNER CO. 1245 Central Avenue MINNEAPOLIS, MINN.

MIDGET-FLAME TORCH

For Copper Tubing Work

The small pointed flame is ideal for sweating fittings on the smaller sizes of copper tubing. The curved internal fuel feed pipe and heavy wicking allow this torch to burn in any position.

No. 99 PINT SIZE—For Close Quarters

CLAYTON & LAMBERT MFG. CO., DETROIT

Radio—

(Continued from Page 60)

first things Colonel Goethals did when taking over the work was to combat these dreaded diseases by bringing down a force of 900 plumbers to form a pioneering sanitary unit.

"Sanitation today, in its broader application, is taken for granted. In the home, however, the plumber not only assumes the role of the household health guardian, but contributes generously to the beauty, comfort, cleanliness and convenience of the most important institution in the world—your home.

"May I close with a reminder that you safeguard your homes by calling your registered master plumber for a thorough inspection at least once every six months."

Announcer: "Thank you, Mr. Picard. I am certain your listeners were as interested in your talk as I. We are looking forward to your next appearance on the program next Wednesday. And now, in our musical portrait gallery, we turn to the melodies of Schumann, to hear his 'Traumerei'."

Music: "Traumerei."

Announcer: "W. H. Picard, Incorporated, invites you to enjoy the convenience, charm and distinction of a modern bathroom and kitchen. By so doing, you assure your family of health, happiness, comfort and a joy in living that is rightfully yours. Consult W. H. Picard, 4166 Broadway in Oakland, tomorrow. For your convenience, W. H. Picard, Incorporated, is open Thursday and Friday evenings. So avail yourself of this opportunity for securing greater health, greater happiness."

Theme: (Full to close).

Announcer: "This transcribed program came to you from KRE in Berkeley."

RADIO TALK

The following talk, given by Mr. Picard on a subsequent occasion, is printed in bare form; that is, without station announcements and musical schedule:

"Good evening, friends. For the past few months you have listened to our programs, and judging from your letters and calls, I am happy to say they have been well received. Your generous response to our efforts has encouraged us in our plans to continue these programs, for we feel sure no greater compliment can be accorded anyone than that of gaining admission to your home.

"The word 'home' is a sacred word—one with a very special meaning for us all. In its application, the word stands first for protection and second for enjoyment, for it's plain that you cannot enjoy something until it is first freed of every menace and hazard. In primitive days, threats came from without; but today they are less obvious.

"What I mean is this: faulty, hastily conceived and poorly installed plumbing and plumbing fixtures are a menace in any home. When the plumbing system fails to function properly, it has been repeatedly shown that resultant illness could have been forestalled by having the water supply and sanitary systems—the most vitally important part of your home—maintained, modernized or enlarged *not* by the handyman who claims he can 'fix

anything,' but by the experienced, highly skilled, registered master plumber.

"If the best doctor you can get is none too good for your family in time of illness, surely you would not deliberately call in an irresponsible handyman to do the work of the licensed master plumber—not when you realize that he guards the health of your entire family.

"After all, it is he who wards off and prevents the danger of illness in the first place. His role, in a manner of speaking, resembles that of the old time Chinese doctor, who was paid for keeping the family in good health. And this is the function of the responsible master plumber.

CROSS CONNECTIONS

"Tonight I should like to speak to you about the evils of cross connections. A cross connection is any connection between a safe water supply and unsafe water source, through which it is possible to contaminate the safe water supply.

"During the recent world's fair in Chicago, a disastrous outbreak of dysentery was responsible for fifty-eight deaths: there were nearly a thousand cases. Plumbing defects in two Chicago hotels were found to be the cause of this epidemic. Doctor Bundesen, chief health officer of the City of Chicago, blamed the connections between water and waste pipes through which contamination of the water supply of both hotels occurred. House engineers allegedly had been making repairs and additions to the plumbing systems of their hotels. It was reported that the city plumbing inspectors were not even notified of the work done by the house engineers, who would have made certain such cross connections would not occur.

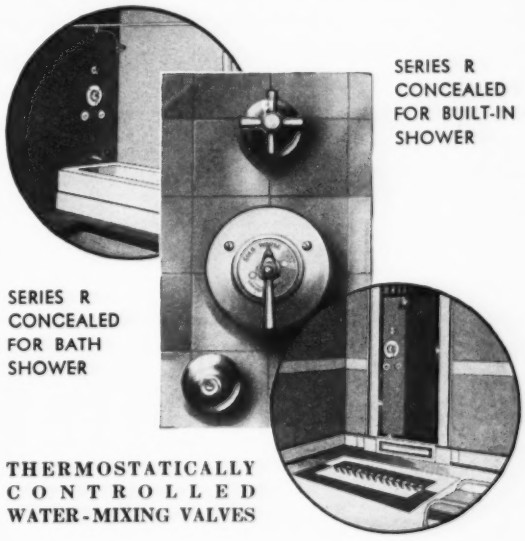
"Harry Barsantee of the National Safety Council, writing in *Quill* magazine, stated 'The water and sewer systems in both hotels are typical of layouts in the older buildings in Chicago and other American cities. Plumbing doesn't last forever. Pipes corrode and conditions change. The plumbing in a given building may have been all right twenty years ago, but it may constitute a health menace today. The situation presents a unique opportunity for public service of a high order.'

"The duly qualified master plumber of today is thoroughly alive to this situation, just as he has been aware of his responsibility as guardian of the health of your home for many years.

"Doctor Bundesen of Chicago summed up the cross connection evil when he said, 'Many of the illegal cross connections we have discovered have been installed by handymen who know nothing of the health hazards to which they expose themselves and others. I am convinced that it is very important that only licensed master plumbers have charge of new plumbing installation, maintenance and remodeling jobs.'

"It is my sincere desire that you regard your registered master plumber as a highly skilled craftsman, a specialist in sanitation and an alert guardian of the health in your home. Guard against faulty and defective sanitary plumbing, and protect the health of your loved ones within the home by calling upon the registered master plumber at least once every six months, for a thorough inspection."

For **SAFETY** *in the home* **SHOWER**



SERIES R CONCEALED FOR BUILT-IN SHOWER

SERIES R CONCEALED FOR BATH SHOWER

THERMOSTATICALLY CONTROLLED WATER-MIXING VALVES

LEONARD VALVES

MANUFACTURED BY
LEONARD VALVE CO.
1360 Elmwood Avenue, Cranston, R. I.

YOU NEED *this* BOOK

NO MAN interested in forced air heating or air conditioning can afford to be without JONES' ESTIMATING TABLES. This book makes the figuring of forced air heating and air conditioning requirements simple, clear and absolutely certain and eliminates all chance of error or omission. Saves time and effort. Four sets of tables cover every possible condition . . . everything which may have an effect on heating and air conditioning. Can be utilized on ANY system using ducts. Beautifully bound, this book consists of 68 pages, size 6x9. Get your copy. Send your order and your check today. If you are not satisfied, return the book and your money will be refunded. Formerly priced at $2.00 this book has been reduced to... **$1.00**

DOMESTIC ENGINEERING COMPANY
1900 PRAIRIE AVENUE. CHICAGO, ILLINOIS

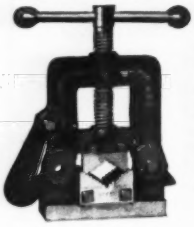
GET OUR FREE BOOK FOLDER

Your copy of our new free book folder describing thirty-nine outstanding books is waiting for you. Be sure to write for it without delay. No cost. No obligation.

Look for the Arm-and-Hammer

ARMSTRONG BROS.

Unbreakable Hooks



ARMSTRONG BROS. Standard Pipe Vises are automatic locking, quick in action, convenient in use. Bodies are of Certified Malleable Iron with *unbreakable drop forged steel hooks*. Jaws are of tool steel, hardened tempered and tested. Teeth are milled. Screws are of special steel with double-wear threads. Handles have oval ends that will not pinch hands. This greatly improved vise costs no more than others of standard make. Be sure to see it before you buy. Look for the Arm-and-Hammer.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave. CHICAGO, U. S. A
Eastern Warehouse and Sales Office: 199 Lafayette St., New York, N.Y

Write for Catalog P-35

THE NAME SPECIFIED THROUGHOUT THE WORLD

PAINE COMPANY

Every item in the Paine line is in response to an insistent demand for a fool-proof specialty, of highest quality, the utmost utility, and thoroughgoing convenience and ease of use.

2949 CARROLL AVE., CHICAGO
79 BARCLAY ST., NEW YORK

Send for New Complete Catalog

METAL SPECIALTIES FOR INDUSTRY

The Paine line includes LEAD AND STEEL EXPANSION ANCHORS, PAINE SPRING WING TOGGLE BOLTS, PIPE STRAP, WIRE PIPE HOOKS, PERFORATED HANGER IRON and many other items, INCLUDING SPECIALTY STAMPINGS TO YOUR ORDER. Each is the leader of its kind.

Install the MARSH *New* NO. 2

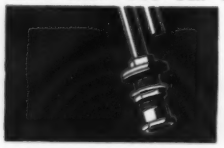
Air and Vacuum Valve and SEE the difference

Write for circular explaining the Marsh construction that means higher speed venting, even heating, and greater economy

JAS. P. MARSH CORP
2051 Southport Ave., Chicago

LEADS TO OTHER SALES

The sale of a SHERWOOD Ball Cock invariably paves the way to further, profitable plumbing and heating business. This business can easily be yours if you'll recommend SHERWOOD Ball Cocks to those in your community who suffer from noisy closet tanks. They'll be gratified at the results of a SHERWOOD installation . . . their future business, and that of their acquaintances, is bound to go to you.



SHERWOOD BRASS WORKS
6331E. JEFFERSON AVE., DETROIT

SHERWOOD BALL COCKS

Pressure—

(Continued from Page 63)

of the tank the pressure, of course, would be 15 lb. and at the bottom of the tank it would be 15 lb. plus the head of water in the tank.

The last question would be computed in a similar manner by taking H as the height, or distance, below the equivalent water line that would produce the pressure exerted at the top of the pipe. If 30 lb. is imposed at the top of the pipe; this would make the equivalent water line

30 lb. / 0.434 lb. or about 70 ft. additional

and H in that case would be assumed as the distance below the equivalent water line which exists at a point approximately 70 ft. above the top of the pipe. This is illustrated in Fig. 4. Where equivalent water lines have to be used it will be noted that the tanks are no longer "atmospheric pressure" tanks but must be closed tanks; yet if a vent pipe or relief pipe were installed on such a tank and, if this were carried up as high as the equivalent water line level, then the water would stand in this pipe at the equivalent water line and the method of calculation would be the same as if the tank really extended to this height since the pipe is simply an extension of the tank—see Fig. 3.

Prices—

(Continued from Page 56)

The preceding pages of this article reproduce product and price comparisons within our own industry. Wherever possible, this month's comparisons on a price basis are consumer prices. In last month's issue in comparing a 1926 and a 1937 water feeder, trade prices were given; actual list prices were $50.00 for the 1926 model and $36.00 for the 1937 model. A comparison of the prices published however did show that a large differential existed between today's product and that of 1926.

In the case of a comparison between 1926 and 1937 controls, published last month, various controls, their features and prices were compared side by side. It has since been pointed out that the first four controls referred to an oil burner installation, while the next three controls referred to a hand-fired, coal burning installation.

Flush Valves

Old Model

1. Nickel plate construction.
2. Commercial mixture of metals.
3. No foot operated valve.
4. No vacuum breaker.
5. **Approximate consumer's price** $12.00

Condensation—

(Continued from Page 67)

studs it should be fastened in place with wood strips.

The practice of installing insulation in existing houses, some of which have been built for many years, is becoming general, adding both to summer and winter comfort of the accupants. The occurrence of moisture or condensation in these older houses after insulation is often uncommon because such houses are not as tight as new houses, windows fit less snugly and probably have no weather strips. But under such conditions the normal humidity is lower. These older homes may show evidence of moisture accumulation. Some of the companies that insulate existing houses take off a portion of the outer wall covering and cut a large number of openings in the sheathing through which the insulation is blown and replace the outer covering without filling the holes in the sheathing. These openings allow ventilation and should be helpful in allowing vapor to escape outward. Some companies include some form of attic or roof ventilation as part of the contract.

POSITIVE PROTECTION

Positive protection for existing buildings that have a moisture problem or where it is proposed to install winter air conditioning may require some type of barrier on the interior face of exterior walls and on the ceilings below the roof.

The question sometimes arises as to the possibility of summer cooling causing condensation in walls. This is very unlikely because the inside temperatures are seldom more than 15 degrees below outside temperatures so that the possibility of condensation would only occur during periods of extremely high humidity outside. Such a condition would be of rather short duration and would be unimportant.

For new construction it is recommended that a suitable vapor barrier be installed on the side wall studs and below the ceiling insulation and that some attic ventilation also be provided. This should prove ample protection for winter air conditioning. Further, it offers protection during the construction period, particularly if plastering is done in cold weather.

(Continued from Page 56)

Flush Valves
Present Model

1. Chrome plate construction.

2. Red bronze and monel metal

3. Foot operated valve.

4. Vacuum breaker.

5. Approximate consumer's price $10.00

PARMELEE *for* PUSH NIPPLES
modern and obsolete

Quick Service

When you want replacement Push Nipples quickly—think of Parmelee. Orders shipped the day received. Complete stock. Push Nipples to fit any style, type or size of cast iron radiation ever made in this country. *Exact fit guaranteed.* Send sample or sketch giving accurate dimensions. Rust-resistant finish if desired. Also boiler nipples.

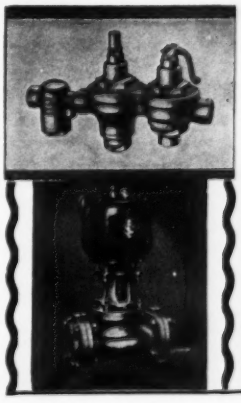
PARMELEE MANUFACTURING CORP.
P. O. Box 30 Frankfort, New York

Reichert
SOLDERLESS HEAVY GAUGE SHEET COPPER
Floats

World's Strongest
Patented seam and spud construction.
Inspected, tested and guaranteed leak-proof.
Write for folders on the entire line of floats and rubber tank balls.
THE REICHERT FLOAT & MFG. CO.
2238 Smead Ave. Toledo, O.

KEEP THEM HANDY!
Keep a complete supply of HINDLEY'S Plumbers' Specialties handy at all times and you minimize loss of valuable time on the job. The HINDLEY line of plumbers' specialties is a complete—better-quality line that can be depended upon in any emergency. Be prepared! Order from your jobber TODAY . . . and KEEP THEM HANDY!

HINDLEY'S *PLUMBERS'* SPECIALTIES
HINDLEY MFG. CO.
VALLEY FALLS, RHODE ISLAND

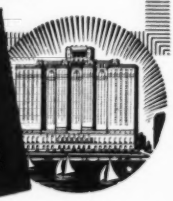


KAINER CIRCULATING • SYSTEMS •
For HOT WATER HEATING
Above the well known Kainer Governor Model B-2, below the Kainer Circulator. These major units work co-ordinately and are fully described in special bulletin form. Have you your copy?
Write for Bulletin No. 66 Today!
KAINER & COMPANY
761 Mather St. Chicago

MANY FINE PEOPLE HAVE PRAISED

the world of ease and comfort—the genial atmosphere of the world's largest hotel. When you come to The Stevens, you'll find their stories true. This good will is the result of the constant effort of our entire staff to make the most discerning traveler feel at home.

OTTO K. EITEL, *Managing Director*



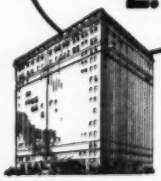
STEVENS
America's Grand Hotel
CHICAGO

Room, with Bath, from $3

Hospitality
FIRST and ALWAYS at
HOTEL MELBOURNE

A night's rest that's peaceful and refreshing - a pleasant atmosphere in the lobby - the warm glow that good food brings - the pleasant reaction that low prices give - these are the things that make the Melbourne the choice of every experienced traveler.

400 ROOMS WITH BATH FROM $2.50 UP



J. K. BRYAN
Manager

ST. LOUIS
LINDELL BLVD. at GRAND AVE.

CLASSIFIED ADS

SITUATIONS OPEN

CREST — THE SPECIALTIES THAT are special—Invites your application as salesman direct to Master Plumbers. Write fully and confidentially, giving your complete selling experience. Address CREST MFG. CO., 463 48th Ave., Long Island City, New York.

SITUATIONS WANTED

EXECUTIVE

Knowledge of Plumbing—Heating and kindred supplies. Personally managed — Purchasing — Sales—(Over two million annually). Knowledge of finance—Credits—Advertising—will work out any reasonable arrangement. Highest references —available immediately. Will go anywhere—(out of town preferred). Consider taking financial interest—wonderful opportunity to strengthen management and increase sales. Address Key 408-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

TWENTY YEARS' EXPERIENCE, INcluding office, executive, traveling selling dealers, wholesalers plumbing, heating, factory supplies. Compensation basis immaterial. Excellent references. Address Key 454-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

COMBINATION PLUMBER AND steam fitter with seven years experience in office buildings, desires change. Reference. Address Key 453-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

PLUMBER AND STEAMFITTER DEsires permanent position with reliable established concern. Competent, steady, sober, married, prefer town or small city in eastern New York or Massachusetts. Address Key 427-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

FOREMAN-ESTIMATOR, TOP MAN, plumbing-heating kindred lines, technical graduate, experienced executive, desires change. Address Key 433-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

REPRESENTATIVES WANTED

WANTED: SALES REPRESENTAtives to carry a side line Gerity's complete line of Bathroom Accessories, sold through the jobbing trade. This line is second to none in beauty, design and durability. Liberal commissions paid. Address GERITY-ADRIAN MANUFACTURING CORP., Adrian, Michigan.

MANUFACTURERS' REPRESENTAtive familiar with ventilation and capable of doing a sales and engineering job with established line of Dual-Air Power Fans. Address Key 264-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES WANTED

ESTABLISHED SALES ORGANIZAtion with high reputation and excellent contacts among leading jobbers in metropolitan New York and surrounding territory is open for one or two additional major lines. We can put over meritorious products of established manufacturers. Address Key 447-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

VERTISING

RATES FOR CLASSIFIED ADVERTISEMENTS

Eight cents per word, including heading and address. For keyed address count seven words. Minimum advertisement, $2.00 per insertion. Cash must accompany order. For rates on bold face advertisements in this section write to Classified Advertising Department, DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago, Illinois.

ATTENTION—MANUFACTURERS

St. Louis manufacturers' representative, with 10 years executive and sales experience in plumbing and heating materials, now operating in Missouri and Southern Illinois, has attractive proposition to offer manufacturers interested in increasing their volume and reducing sales cost in that territory.

Will furnish several companies with ample display space in salesroom, located on corner of most prominent thoroughfare in St. Louis. Warehouse space for local stock and facilities for shipping from it also provided. Territory covered at regular intervals.

Proposition will give you every advantage of direct factory branch at fraction of usual cost of operating one. Manufacturers interested in intelligent representation, display room and warehouse facilities for above territory will receive full particulars on request. Services, warehouse space and display room offered on commission, salary or yearly fee basis. Address Key 452-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES WANTED—MANUFACTURERS' representative covering eastern Pennsylvania, southern New Jersey, Maryland, District of Columbia and Virginia desires additional lines. Address Key 455-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

ESTABLISHED MANUFACTURERS' representatives with Chicago warehouse facilities desire additional lines. Well known by plumbing and heating jobbers in the following states; Illinois, Michigan, Wisconsin, Indiana and Ohio. Address Key 449-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

LINES WANTED

CAPABLE SALESMAN OPERATING IN PITTSBURGH, PA. TERRITORY NEEDS ONE OR TWO MORE LINES TO HANDLE WITH HIS PRESENT SINGLE COMMODITY. WIDE AND LONG ACQUAINTANCE WITH WHOLESALERS, PLUMBERS, ARCHITECTS, BUILDERS, ETC. BEST REFERENCES. CAN GIVE AN ARTICLE OF MERIT REAL AGGRESSIVE REPRESENTATION. CORRESPONDENCE INVITED. ADDRESS KEY 448-D, "DOMESTIC ENGINEERING," 1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS.

MANUFACTURERS' REPRESENTATIVE covering Chicago, Illinois and Indiana wants complete line of Toilet Seats, Brass Goods and Rubber Goods —and what have you. Address Key 451-D, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

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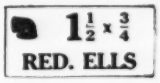

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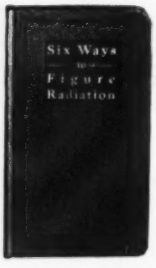

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